MHC-F150/FR10

SERVICE MANUAL

US Model
Canadian Model
MHC-F150
AEP Model
UK Model
E Model
Australian Model
MHC-FR10

- MHC-F150/FR10 is composed of following models.
  As for the service manual, it is issued for each component model, then, please refer to them.

COMPONENT MODEL NAME

	MHC-F150	MHC-FR10
COMPACT DISC DECK RECEIVER SYSTEM	HCD-F150	HCD-FR10
SPEAKER SYSTEM	SS-F150	SS-FR10
	SS-SRF1	

•Abbreviation
CND :Canadian
G :German
SP :Singapore
MY :Malaysia
AUS :Australian

SPECIFICATIONS

General

Power consumption
European models: 150 watts
Other models: 250 watts
Dimensions (w/h/d) Approx. 280 x 375 x 455 mm

Mass
MHC-F150: Approx. 12 Kg (26 lbs. 7oz.)
MHC-FR10:
European models: Approx. 10 Kg (22 lbs. 1 oz.)
Other models: Approx. 12 Kg (26 lbs. 7 oz.)

Supplied accessories:
AM loop antenna (1)
Remote RM-SF150 (1)
Batteries (2)
FM lead antenna (1)
Speaker cords (4)
Front speaker pads (8)

Design and specifications are subject to change without notice.

PARTS LIST

Ref. No.	Part No.	Description	Remark
		ACCESSORIES & PACKING MATERIALS-**********5	
	1-501-374-11	ANTENNA, LOOP -	
	1-501-659-11	ANTENNA (FM) (US, CND, MY, SP, AUS)	
	1-501-807-11	ANTENNA (FM) (AEP, UK, G)	
	3-862-493-11	MANUAL, INSTRUCTION (ENGLISH) (EXCEPT G)	
	3-862-493-21	MANUAL, INSTRUCTION (FRENCH) (CND)	
	3-862-493-31	MANUAL, INSTRUCTION (FRENCH, SPANISH)	(AEP, MY, SP)
	3-862-493-41	MANUAL, INSTRUCTION (GERMAN) (AEP, G)	
	3-862-493-51	MANUAL, INSTRUCTION (ITALIAN, PORTUGUESE)	(AEP)
	3-862-493-61	MANUAL, INSTRUCTION (DUTCH, SWEDISH)	(AEP)
	3-862-493-71	MANUAL, INSTRUCTION (CHINESE) (SP)	
	4-991-151-21	COVER, BATTERY (FOR RM-SF150)	
	8-917-636-90	REMOTE COMMANDER RM-SF150	

MINI Hi-Fi COMPONENT SYSTEM

SONY®

MICROFILM

9-922-861-11

Sony Corporation
Home A&V Products Company

98D001689-1
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Published by Quality Assurance Dept.
(Shibaura)

HCD-F150/FR10

SERVICE MANUAL

photo : HCD-F150

US Model
Canadian Model
HCD-F150
AEP Model
UK Model
E Model
Australian Model
HCD-FR10

- This set is the tuner, deck, CD and amplifier section in MHC-F150/FR10.

Manufactured under license from Dolby Laboratories Licensing Corporation.
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U.S and foreign patents licensed from Dolby Laboratories Licensing Corporation.

CD Section	Model Name Using Similar Mechanism	HCD-F100/FR1
	CD Mechanism Type	CDM-46B1
Tape deck Section	Optical Pick-up Name	KSS-213D/Q-NP
	Model Name Using Similar Mechanism	HCD-GRX5/RX66
	Tape Transport Mechanism Type	TCM-230AWR1

SPECIFICATIONS

AUDIO POWER SPECIFICATION:
U.S.A models:
POWER OUTPUT AND TOTAL HARMONIC DISTORTION:
with 8 Ω loads both channels driven, from 70–20,000 Hz; rates 100W per channel minimum RMS power, with no more than 0.9% total harmonic distortion from 250 mmW to rated output.

Amplifier section
North American models:
Front Speaker:
Continuous RMS power output
100 + 100 W
(8 Ω at 1 kHz, 10% THD)
Total harmonic distortion
less than 0.09%
(8 Ω at 1 kHz, 40W)

Rear Speaker:
Continuous RMS power output
12.5 + 12.5 W
(16 Ω at 1 kHz, 10% THD)

European models:
The follwing measured at AC 230 V, 50 Hz DIN power output (Rated)
50 + 50 W
(8 Ω at 1 kHz, DIN)
Continuous RMS power output (Reference)
60 + 60 W
(8 Ω at 1 kHz, 10% THD)
Other models:
The follwing measured at AC 120/240 V, 50/60 Hz
Continuous RMS power output (Rated)
110 + 110 W
(8 Ω at 1 kHz, 1% THD)
Continuous RMS power output (Reference)
130 + 130 W
(8 Ω at 1 kHz, 10% THD)
Peak music power output (Reference)
1500 W
The follwing measured at AC 110/220 V, 60 Hz
Continuous RMS power output (Rated)
90 + 90 W
(8 Ω at 1 kHz, 1% THD)
Continuous RMS power output (Reference)
110 + 110 W
(8 Ω at 1 kHz, 10% THD)

— Continued on next page —

MINI HI-FI COMPONENT SYSTEM

MICROFILM

SONY®

Inputs

VIDEO/MD IN: (phono jacks) voltage 250 mV / 450 mV, impedance 47 kΩ

MIX MIC (except for Australian and European models): (phone jack) sensitivity 1 mV, impedance 10 kΩ

Outputs

VIDEO/MD OUT (phono jacks): voltage 250 mV impedance 1 kΩ

PHONES (stereo phone jack): accepts headphones of 8 Ω or more

SPEAKER:

MHC-F150: accepts impedance of 8 to 16 Ω

MHC-FR10 (European models): accepts impedance of 8 to 16 Ω

MHC-FR10 (Other models): accepts impedance of 8 to 16 Ω

REAR SPEAKER: accepts impedance of 16 Ω

SUPER WOOFER: Voltage 1 V, impedance 1 kΩ

CD player section

System: Compact disc and digital audio system

Laser: Semiconductor laser (λ = 780 nm)
Emission duration: continuous

Laser output: Max. 44.6 µW*
*This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.

Frequency response: 2 Hz – 20 kHz (±0.5 dB)

Wavelength: 780 – 790 nm

Signal-to-noise ratio: More than 90 dB

Dynamic range: More than 90 dB

CD OPTICAL DIGITAL OUT
(Square optical connector jack, rear panel)

Wavelength: 600 nm

Output level: –18 dBm

Tape player section

Recording system: 4-track 2-channel stereo

Frequency response (DOLBY NR OFF): 40 – 13,000 Hz (±3 dB), using Sony TYPE I cassette
40 – 14,000 Hz (±3 dB), using Sony TYPE II cassette

Tuner section

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range

2 band models: 87.5 – 108.0 MHz

3 band (FM-MW-SW) models: 87.5 – 108.0 MHz

3 band (FM-MW-LW) models: 87.5 – 108.0 MHz

Antenna: FM lead antenna

Antenna terminals: 75 Ω unbalanced

Intermediate frequency: 10.7 MHz

AM tuner section

Tuning range

2 Band type:

North American models: 530 – 1,710 kHz (with the interval set at 10 kHz)
531 – 1,710 kHz (with the interval set at 9 kHz)

Other models: 531 – 1,602 kHz (with the interval set at 9 kHz)
530 – 1,710 kHz (with the interval set at 10 kHz)

3 Band type:

European models:

MW: 531 – 1,602 kHz (with the interval set at 9 kHz)

LW: 153 – 279 kHz (with the interval set at 3 kHz)

Other models:

MW: 531 – 1,602 kHz (with the interval set at 9 kHz)
530 – 1,710 kHz (with the interval set at 10 kHz)

SW: 5.95 – 17.90 MHz (with the interval set at 5 kHz)

Antenna: AM loop antenna

Antenna terminals: External antenna terminals

Intermediate frequency: 450 kHz

General

Power consumption

MHC-F150: 200 W

MHC-FR10:

European models: 150 W

Other models: 250 W

Dimensions (w/h/d): Approx. 280 × 375 × 455 mm

Mass

MHC-F150: Approx. 12 kg (26 lbs. 7 oz.)

MHC-FR10:

European models: Approx. 10 kg (22 lbs. 1 oz.)

Other models: Approx. 12 kg (26 lbs. 7 oz.)

Supplied accessories: AM loop antenna (1)
Remote
RM-SF150 (1)
Batteries (2)
FM lead antenna (1)
Speaker cords (4)

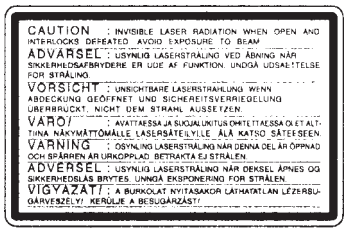
Design and specifications are subject to change without notice.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

The following caution label is located inside the unit.


CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.
VORSICHT : UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET UND SICHEREITSVERRIEGELUNG ÜBERBRUCKT. NICHT DEM STRAHL AUSSETZEN.
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING : OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRÅLEN.
ADVERSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.
VIGYAZAT! : A BURKOLAT NYITASAKOR LÁTHATATLAN LÉZERSUGÁRVESZÉLY! KERÜLJE A BESUGÁRZÁST!

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:
Check the antenna terminals, metal trim, "metallized" knobs, screws, and all other exposed metal parts for AC leakage. Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

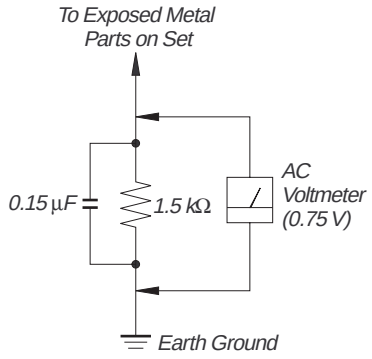


Fig. A. Using an AC voltmeter to check AC leakage.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveform is output repeatedly.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

TABLE OF CONTENTS

1. GENERAL
– FRONT PANEL – ····· 5
– REAR PANEL – ····· 6

2. DISASSEMBLY ····· 8

3. TEST MODE ····· 16

4. MECHANICAL ADJUSTMENTS ····· 18

5. ELECTRICAL ADJUSTMENTS
Deck Section ····· 21
CD Section ····· 25

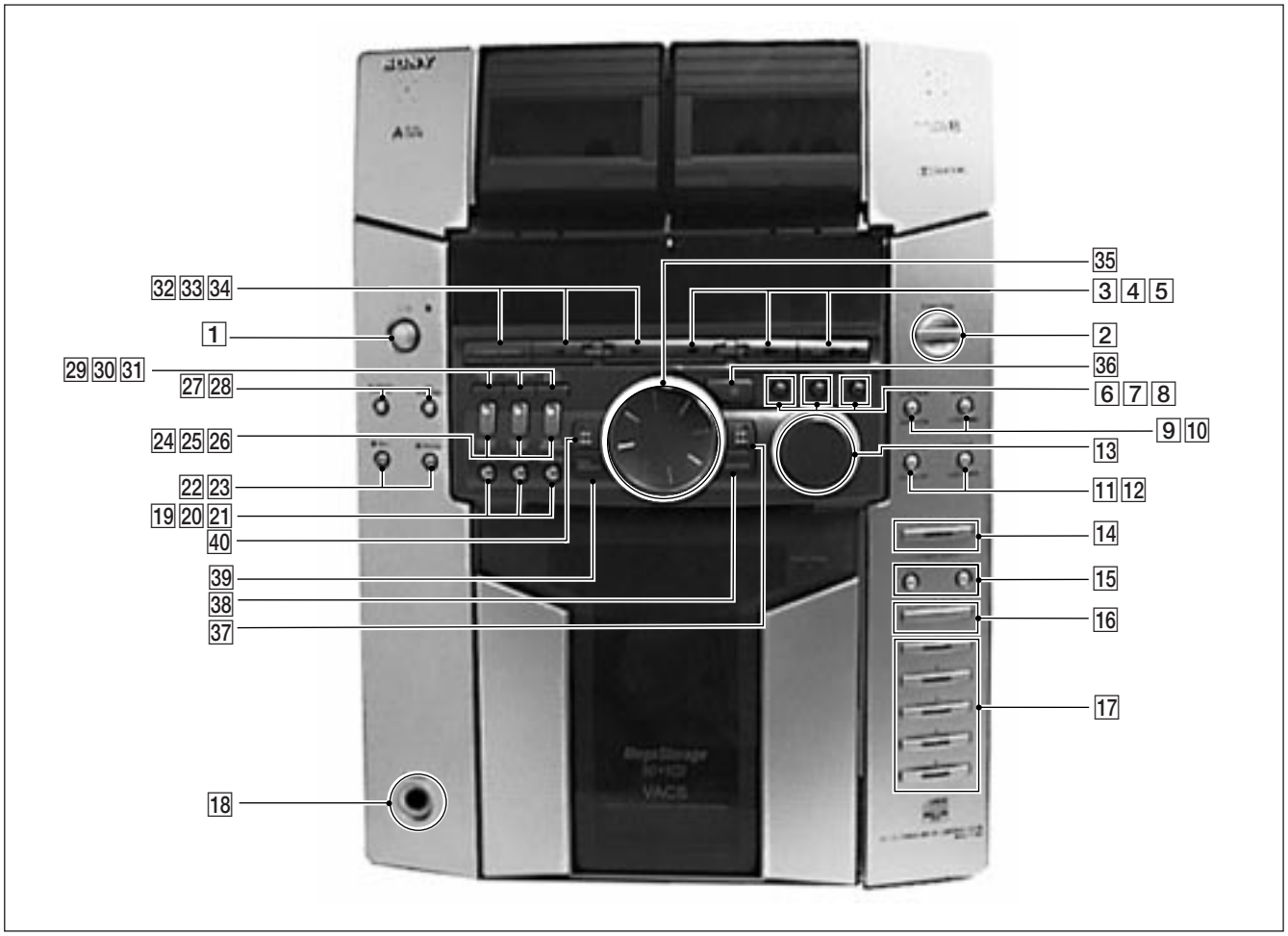
6. DIAGRAMS
6-1. Block Diagram –CD Section– ····· 27
6-2. Block Diagram –Main Section– ····· 29
6-3. Block Diagram –Audio Section– ····· 31
6-4. Circuit Boards Location ····· 33
6-5. Printed Wiring Board –BD Section– ····· 35
6-6. Schematic Diagram –BD Section– ····· 37
6-7. Printed Wiring Board –CD Motor Section– ····· 39
6-8. Schematic Diagram –CD Motor Section– ····· 41
6-9. Printed Wiring Board –Audio Section– ····· 43
6-10. Schematic Diagram –Audio Section– ····· 45
6-11. Printed Wiring Board –Leaf SW Section– ····· 47
6-12. Schematic Diagram –Leaf SW Section– ····· 49
6-13. Printed Wiring Board –Main Section– ····· 51
6-14. Schematic Diagram –Main (1/5) Section– ····· 53
6-15. Schematic Diagram –Main (2/5) Section– ····· 55
6-16. Schematic Diagram –Main (3/5) Section– ····· 57
6-17. Schematic Diagram –Main (4/5) Section– ····· 59
6-18. Schematic Diagram –Main (5/5) Section– ····· 61
6-19. Printed Wiring Board –Panel Section– ····· 63
6-20. Schematic Diagram –Panel Section– ····· 65
6-21. Printed Wiring Board –Power Section– ····· 67
6-22. Schematic Diagram –Power Section– ····· 69
6-23. Waveforms ····· 71
6-24. IC Pin Function Description ····· 72
6-25. IC Block Diagrams ····· 80

7. EXPLODED VIEWS ····· 82

8. ELECTRICAL PARTS LIST ····· 90

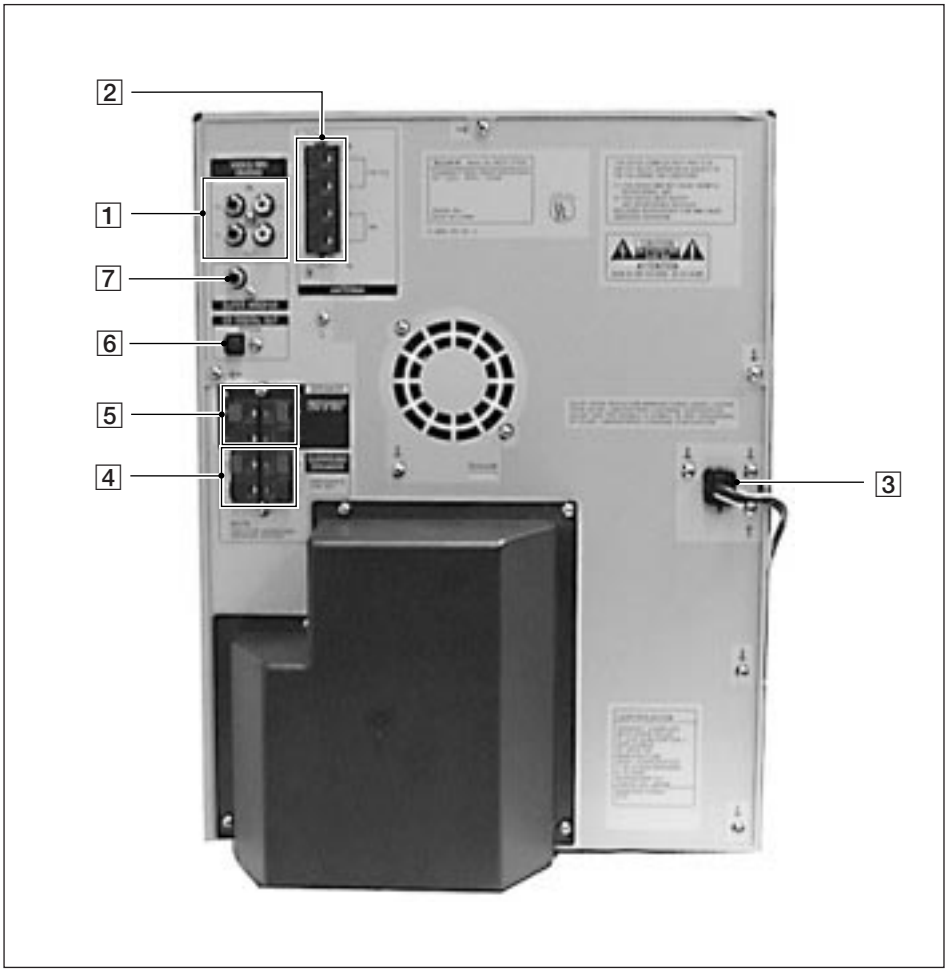
SECTION 1
GENERAL

– FRONT PANEL –



1 I/⏻ button
2 FUNCTION button
3 TAPE B ◁ (play) button
4 TAPE B ▷ (play) button
5 CD ▷II (play, pause) button
6 DSP button
7 DBFB button
8 GROOVE button
9 CONTINUE, DIRECTION button
10 SHUFFLE, STEREO/MONO button
11 PROGRAM, DOLBY-NR button
12 REPEAT, TUNER MEMORY button
13 VOLUME Knob
14 CD PLUS ONE button
15 CYBER REMIX (LOOP, FLASH) button
16 GROUP ENTRY button
17 Numeric buttons
18 PHONES jack
19 CHECK button
20 CLEAR button
21 DELETE button
22 REC button
23 PAUSE button
24 MEMO INPUT button
25 MEMO SCAN button
26 MEMO SEARCH button
27 HI-SPEED DUBBING button
28 CD SYNCHRO button
29 DISPLAY/DEMO button
30 CLOCK TIMER SET button
31 TIMER SELECT button
32 TUNER/BAND button
33 TAPE A ◁ (play) button
34 TAPE A ▷ (play) button
35 JOG dial
36 STOP button
37 TUNING +, FORWARD button
38 ENTER button
39 FILE SELECT button
40 TUNING-, BACKWARD button

– REAR PANEL –



1 VIDEO/MD (AUDIO) jack
2 ANTENNA terminal
3 AC power cord
4 REAR SPEAKER terminal
5 SPEAKER terminal
6 CD DIGITAL OUT connector
7 SUPER WOOFER jack

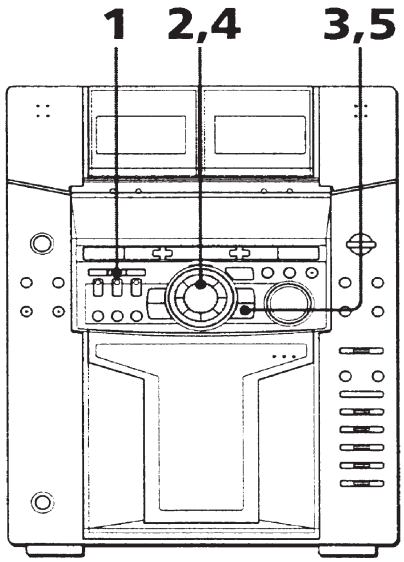
This section is extracted from instruction manual.

Step 3: Setting the time

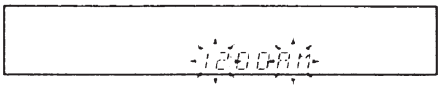
You must set the time before using the timer functions.

The clock is on a 24-hour system for the European model, and a 12-hour system for other models.

The 12-hour system model is used for illustration purposes.



1 Press CLOCK/TIMER SET.
The hour indication flashes.

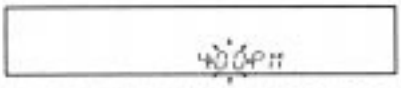


2 Turn the jog dial to set the hour.

continued

Step 3: Setting the time (continued)

3 Press ENTER
The minute indication flashes.



4 Turn the jog dial to set the minute.

5 Press ENTER.
The clock starts working.

Tips

- If you've made a mistake, start over from step 1.
- Setting the time deactivates the demo mode. If you want to display the demo mode, press DISPLAY/DEMO when the power is off.

Note

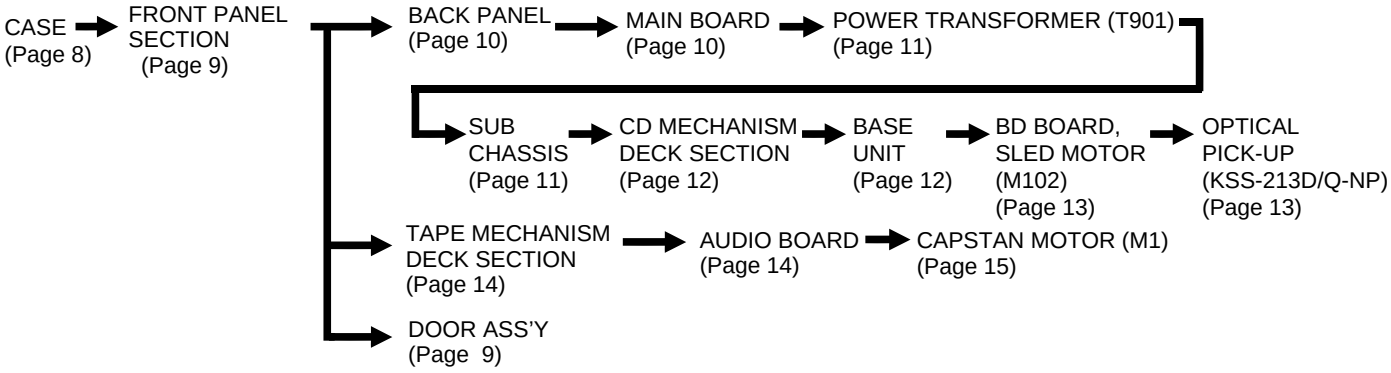
The previous explanation shows you how to set the time while the power is off. To change the time while the power is on, do the following:

1 Press CLOCK/TIMER SET.
2 Turn the jog dial to select SET CLOCK.
3 Press ENTER.
4 Perform steps 2 through 5 above.

9 10

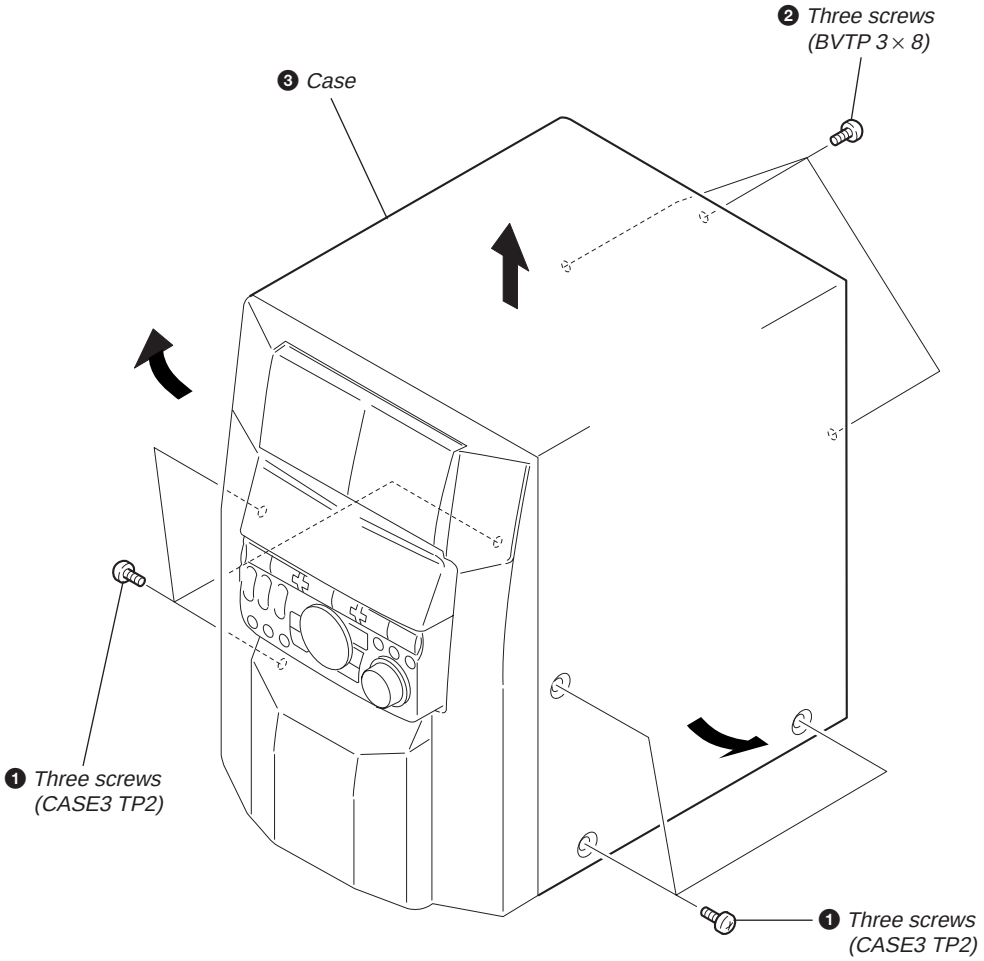
SECTION 2
DISASSEMBLY

• This set can be disassembled in the order shown below.

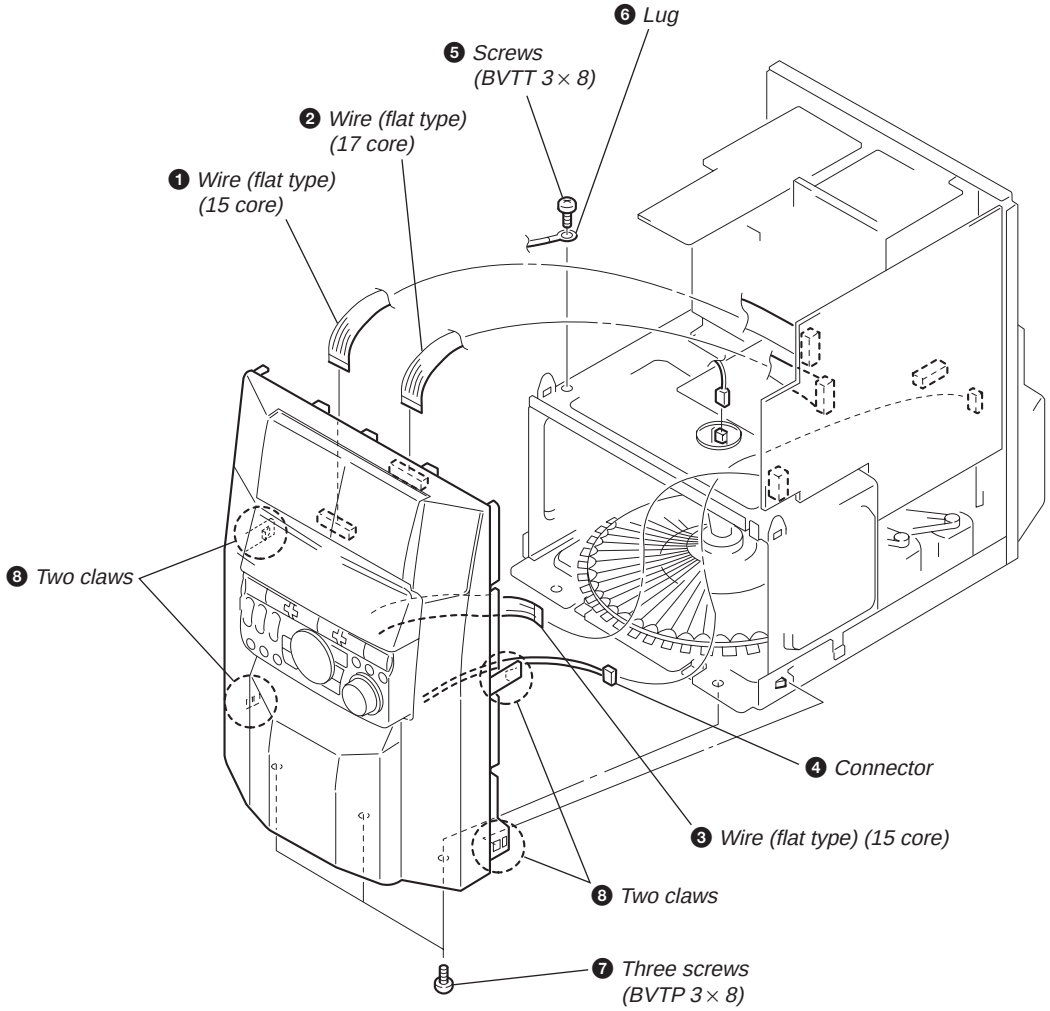

CASE (Page 8)
FRONT PANEL SECTION (Page 9)
BACK PANEL (Page 10)
MAIN BOARD (Page 10)
POWER TRANSFORMER (T901) (Page 11)
SUB CHASSIS (Page 11)
CD MECHANISM DECK SECTION (Page 12)
BASE UNIT (Page 12)
BD BOARD, SLED MOTOR (M102) (Page 13)
OPTICAL PICK-UP (KSS-213D/Q-NP) (Page 13)
TAPE MECHANISM DECK SECTION (Page 14)
AUDIO BOARD (Page 14)
CAPSTAN MOTOR (M1) (Page 15)
DOOR ASS'Y (Page 9)

Note: Follow the disassembly procedure in the numerical order given.

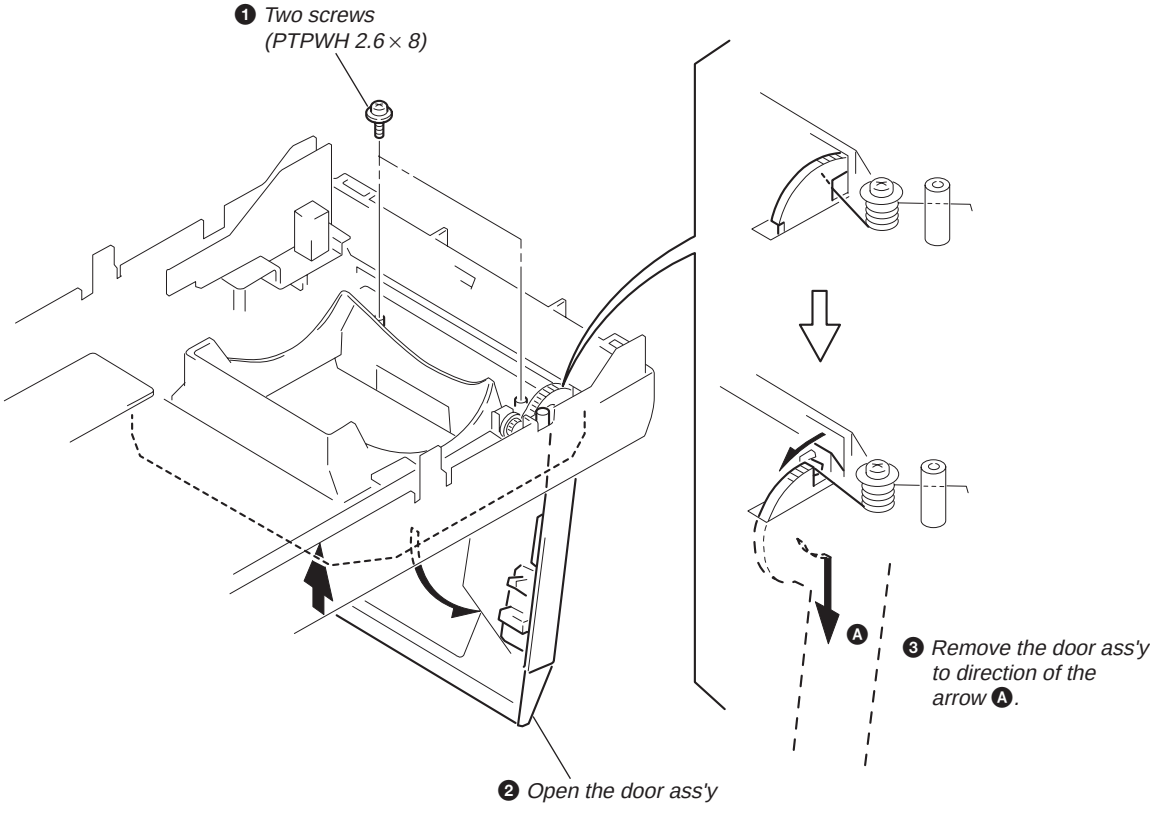
2-1. CASE



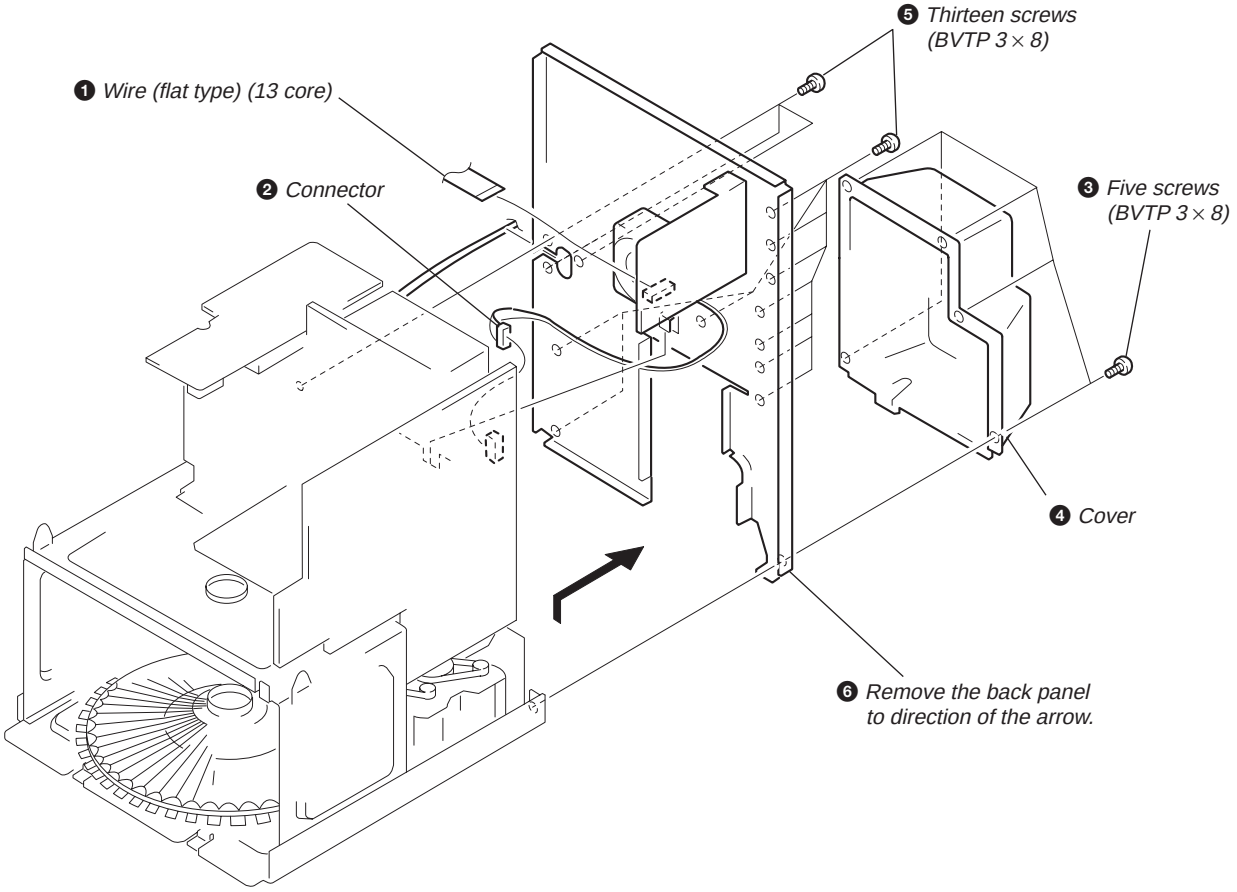
2-2. FRONT PANEL SECTION


❻ Lug
❺ Screws (BVTT 3× 8)
❷ Wire (flat type) (17 core)
❶ Wire (flat type) (15 core)
❽ Two claws
❹ Connector
❸ Wire (flat type) (15 core)
❽ Two claws
❼ Three screws (BVTP 3× 8)

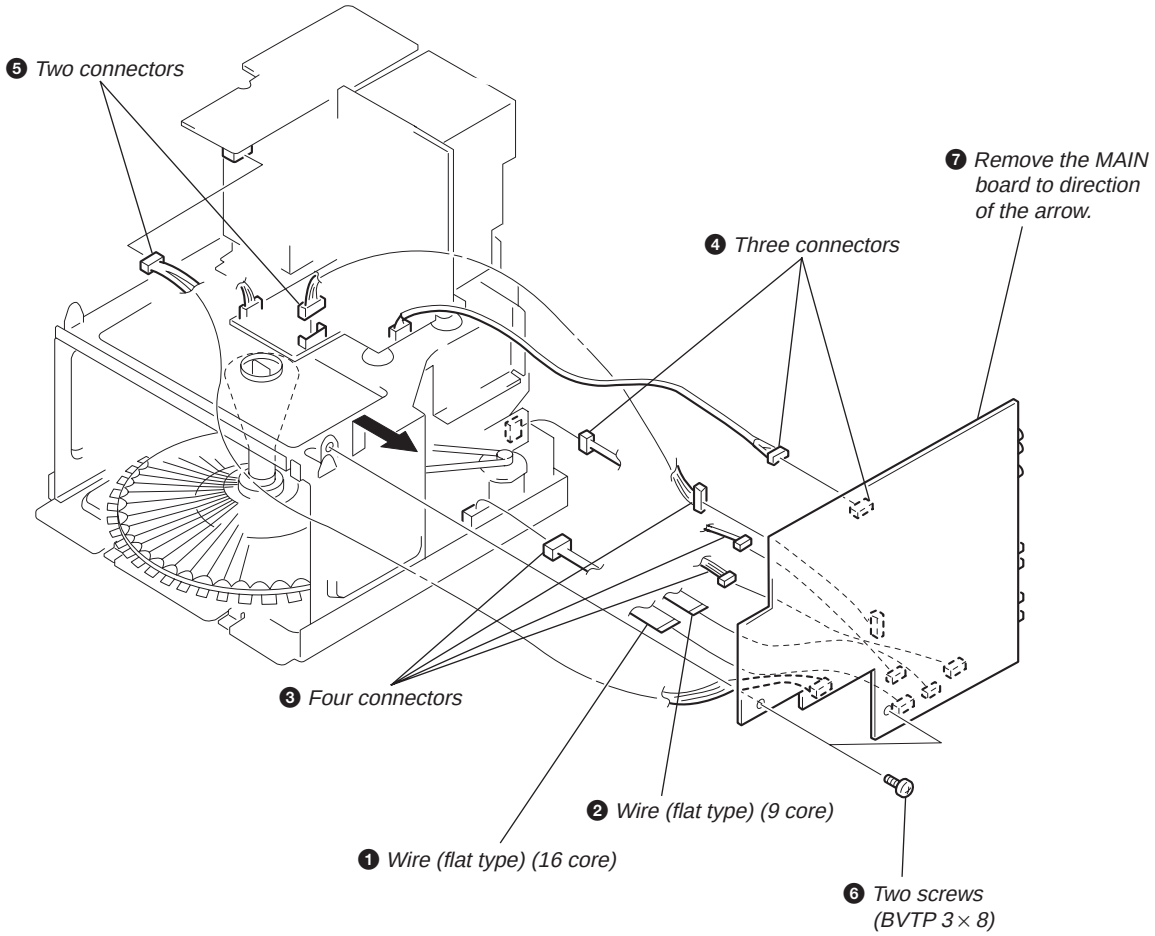
2-3. DOOR ASSY



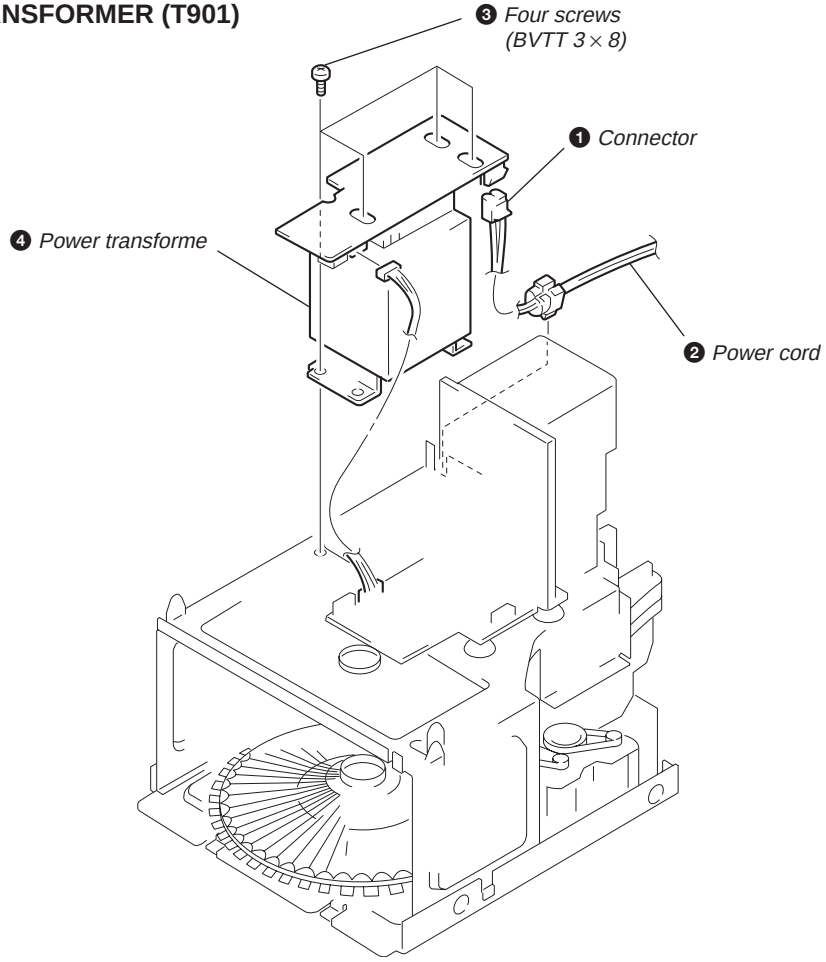
2-4. BACK PANEL


❺ Thirteen screws (BVTP 3 × 8)
❶ Wire (flat type) (13 core)
❷ Connector
❸ Five screws (BVTP 3 × 8)
❹ Cover
❻ Remove the back panel to direction of the arrow.

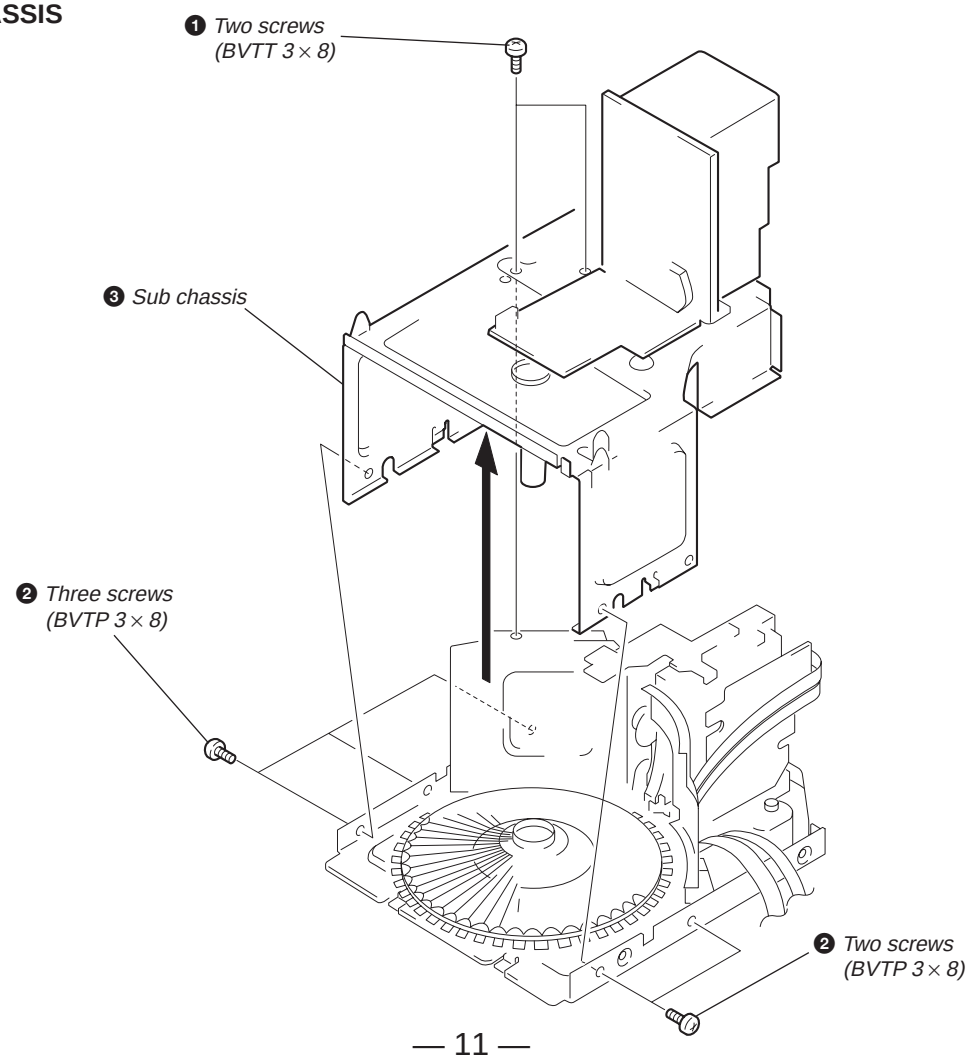
2-5. MAIN BOARD


❺ Two connectors
❼ Remove the MAIN board to direction of the arrow.
❹ Three connectors
❸ Four connectors
❷ Wire (flat type) (9 core)
❶ Wire (flat type) (16 core)
❻ Two screws (BVTP 3 × 8)

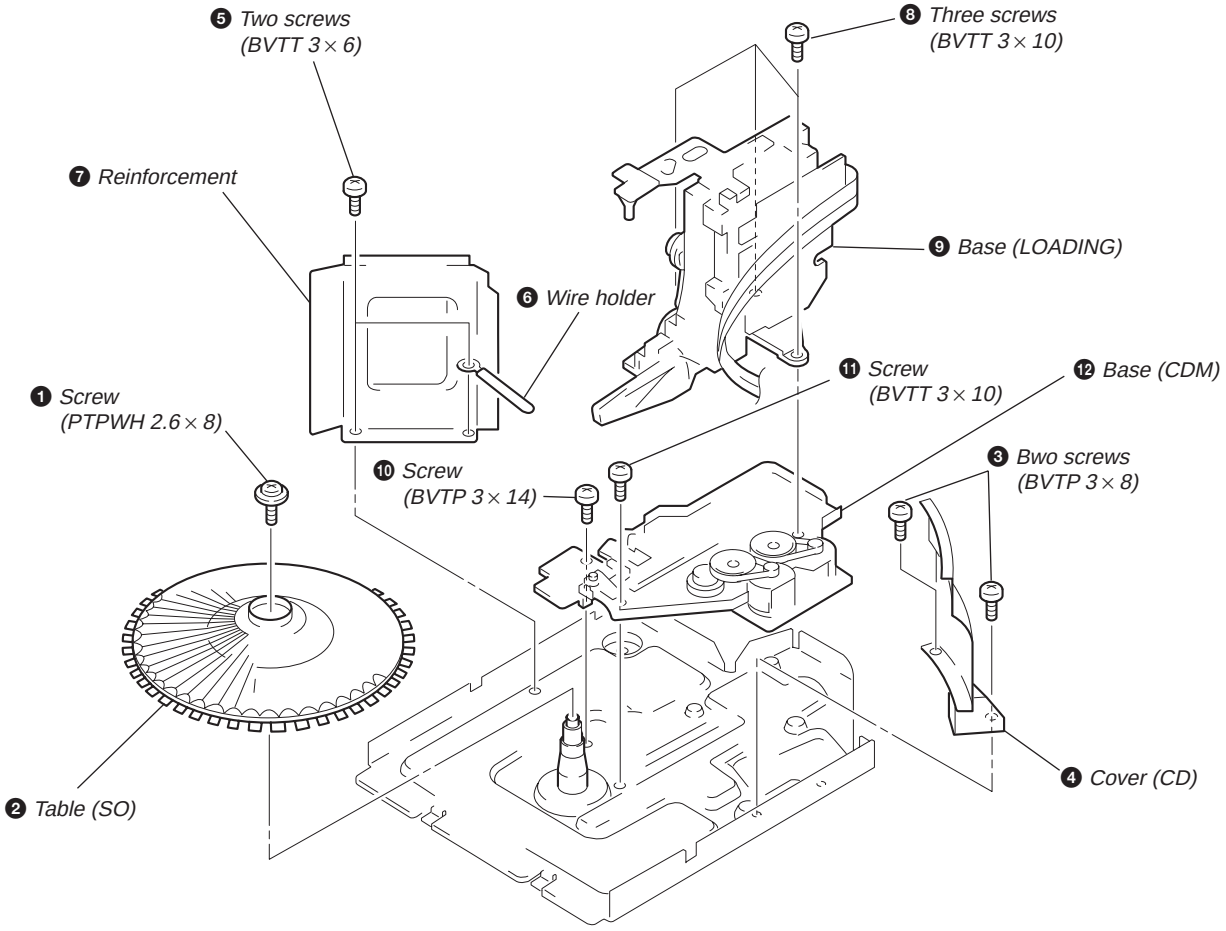
2-6. POWER TRANSFORMER (T901)



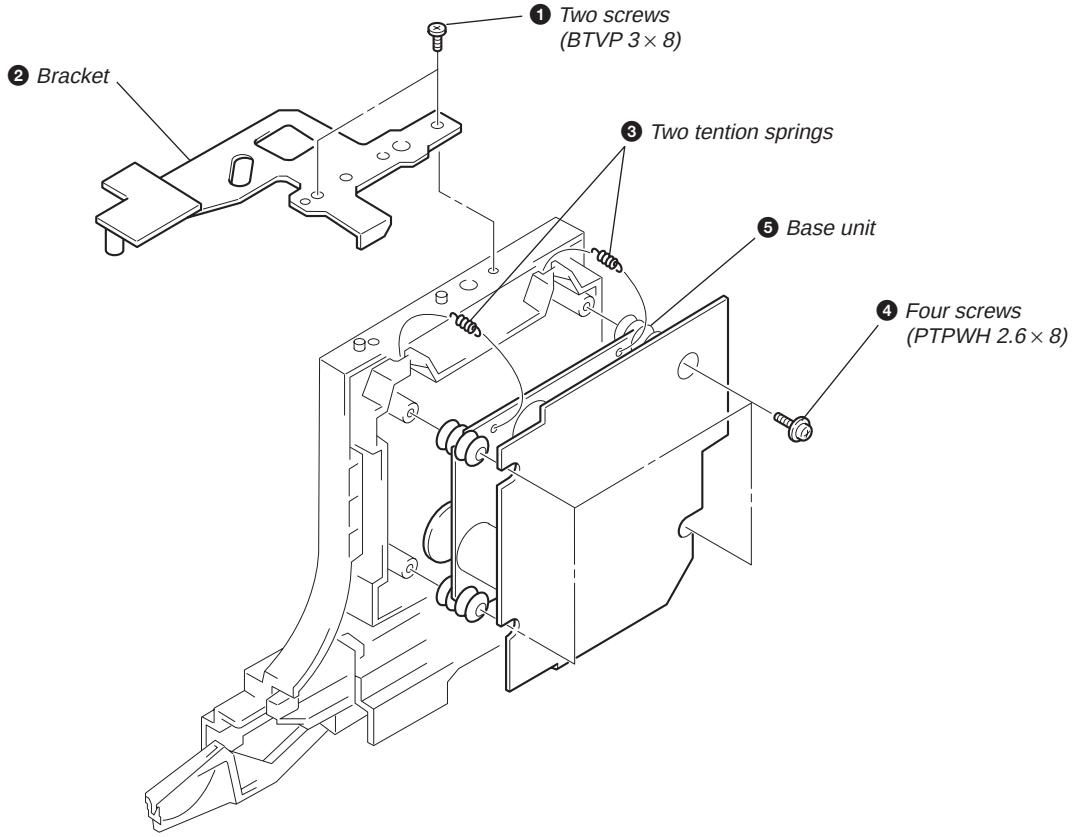
2-7. SUB CHASSIS



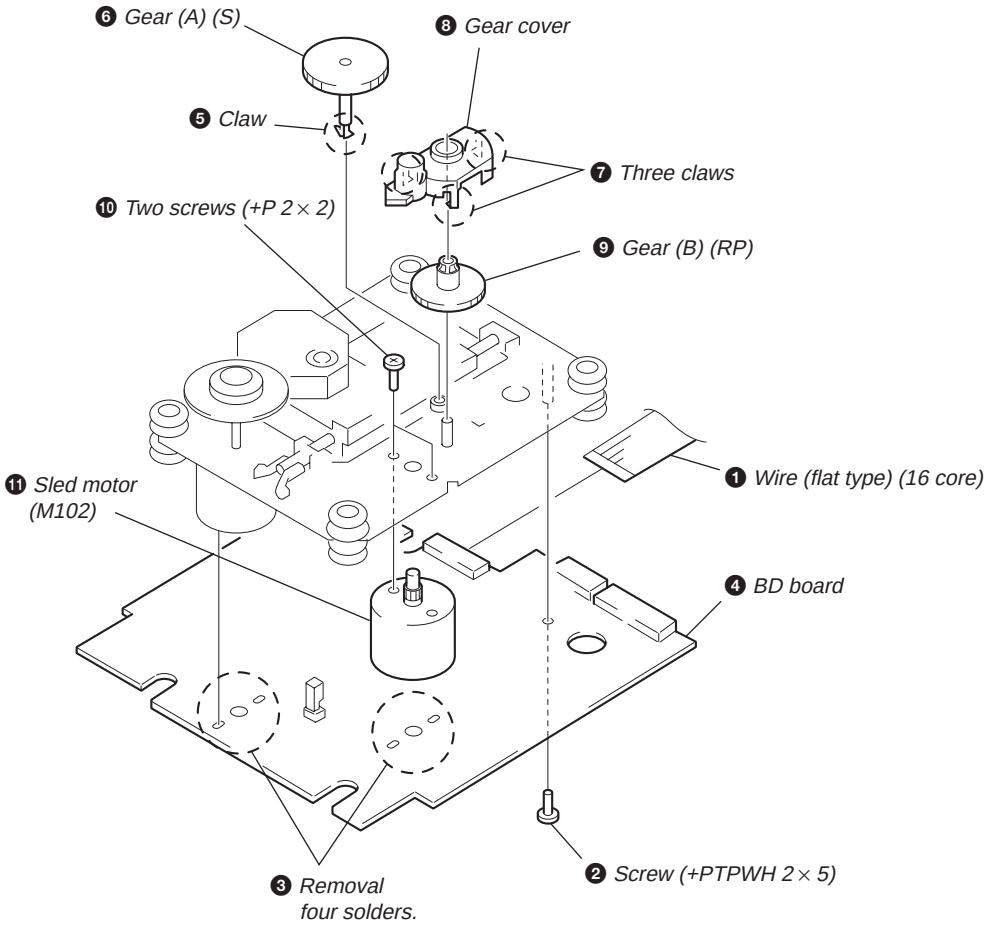
2-8. CD MECHANISM DECK SECTION



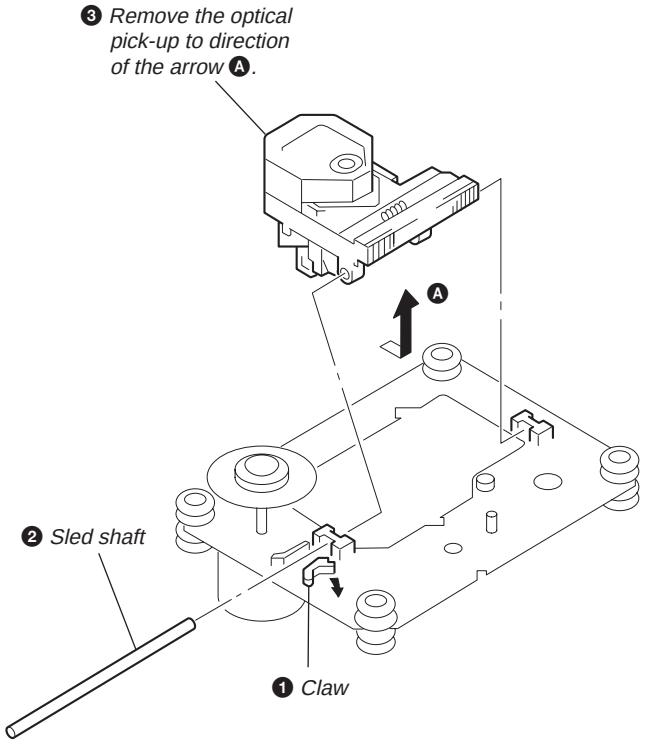
2-9. BASE UNIT



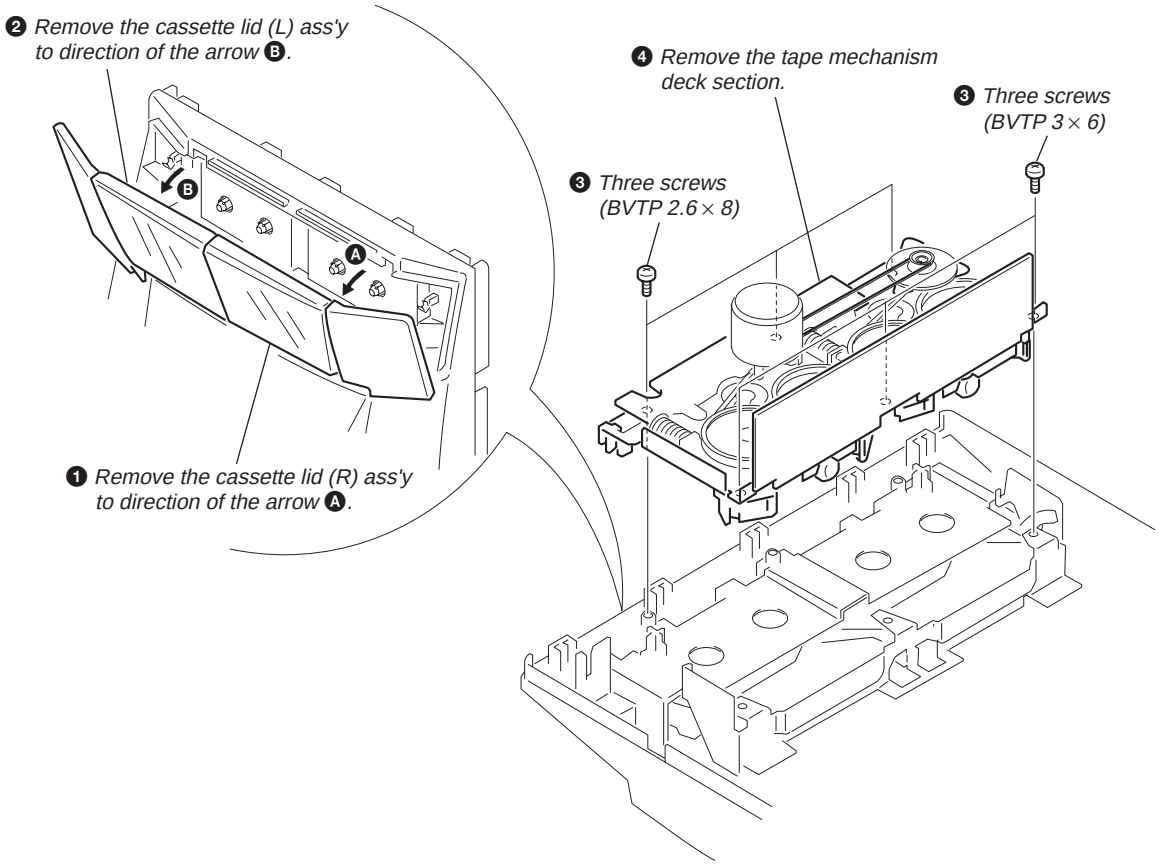
2-10. BD BOARD, SLED MOTOR (M102)


❻ Gear (A) (S)
❽ Gear cover
❺ Claw
❼ Three claws
❿ Two screws (+P 2× 2)
❾ Gear (B) (RP)
❶ Wire (flat type) (16 core)
⓫ Sled motor (M102)
❹ BD board
❸ Removal four solders.
❷ Screw (+PTPWH 2× 5)

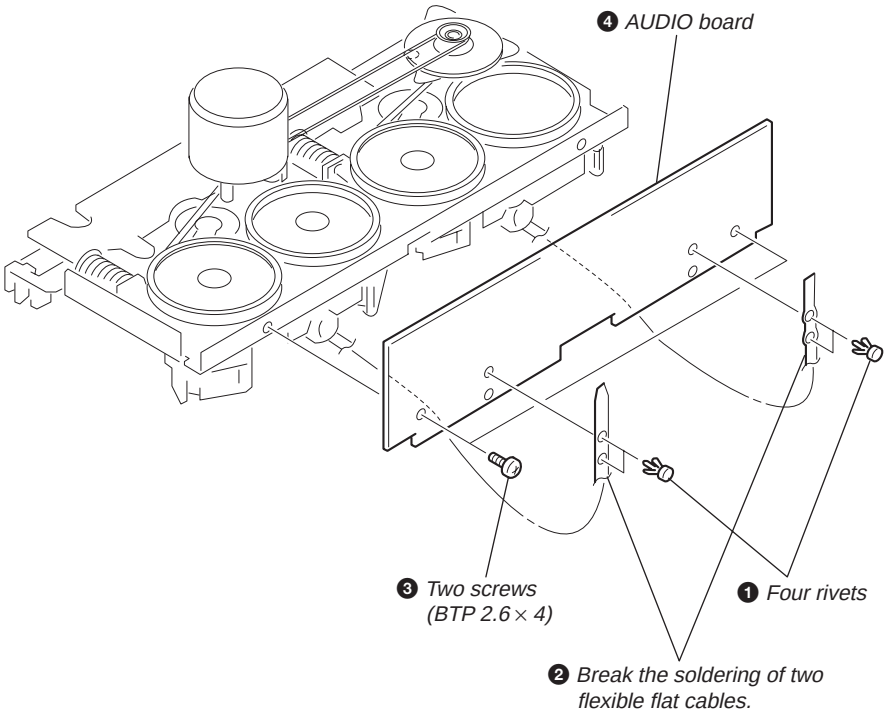
2-11. OPTICAL PICK-UP (KSS-213D/Q-NP)



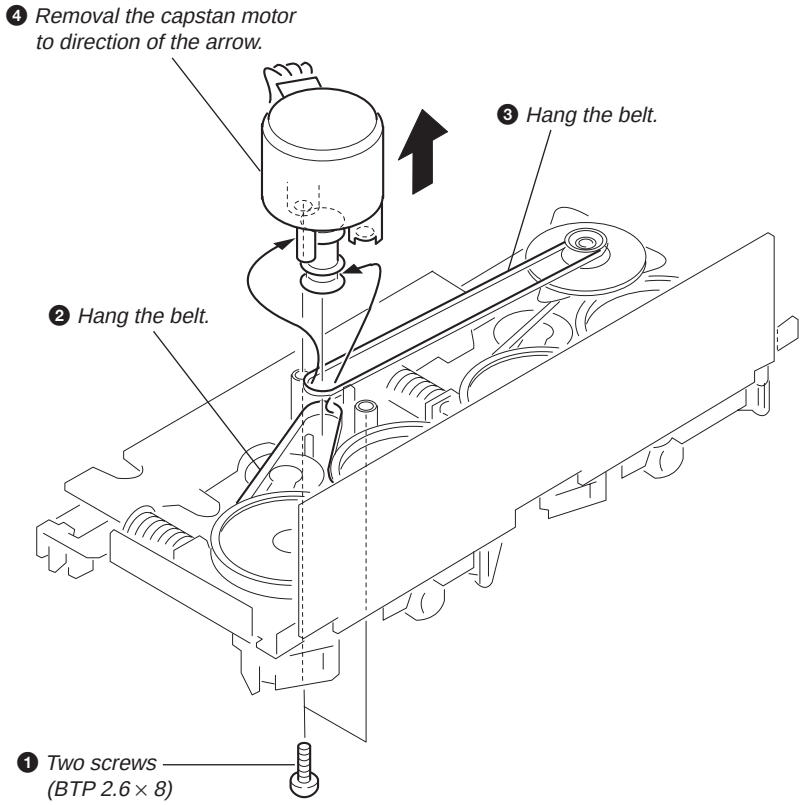
2-12. TAPE MECHANISM DECK SECTION


❷ Remove the cassette lid (L) ass'y to direction of the arrow Ⓑ.
❹ Remove the tape mechanism deck section.
❸ Three screws (BVTP 3 × 6)
❸ Three screws (BVTP 2.6 × 8)
❶ Remove the cassette lid (R) ass'y to direction of the arrow Ⓐ.

2-13. AUDIO BOARD



2-14. CAPSTAN MOTOR (M1)



SECTION 3
TEST MODE

[MC Cold Reset]

* The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customer.

Procedure:

1. Press the three buttons STOP, ENTER and FUNCTION at the same time.
2. The fluorescent indicator tube turns off for a moment and the RAM is reset to the initial conditions.

[MC Hot Reset]

* This mode resets the set with the preset data kept stored in the memory. This hot reset mode is performed also when the power cord is plugged in and out.

Procedure:

1. Press the three buttons STOP, ENTER and GROUP 1 at the same time.
2. The fluorescent indicator tube turns off for a moment and the RAM is reset to the initial conditions.

[CD Initial]

* The CD INITIAL clears all of the CD related data. Execute this mode when returning the set to the customer.

Procedure:

1. Press the three buttons STOP, ENTER and GROUP 4 at the same time.
2. The message "ALL ERASE" appears on the fluorescent indicator tube and the CD related data is reset to the initial conditions.

[CD Line Test]

* The CD Line test displays the rotating time required for one rotation by rotating the disc tray.

Procedure:

1. Press the three buttons STOP, ENTER and GROUP 5 at the same time. The CD PLAY LED and the CD PAUSE LED flash alternately and the disc tray starts rotation.
2. The message "xx << y.y" appears on the fluorescent indicator tube. The left numbers count up the discs starting from 1 to 51. The left numbers "y.y" indicate the rotating time required for one rotation by rotating the disc tray.
3. To exit the CD LINE test mode, execute the MC Hot Reset.

[CD Memo All Clear]

* The mode clears all contents of the CD disc memo. Execute this mode when returning the set to the customer.

Procedure:

1. Press the two buttons MEMO INPUT and FLASH at the same time.
2. The message "ALL ERASE" appears on the fluorescent indicator tube and the CD disc memo is all cleared.

[GC Test Mode]

* This mode checks microprocessor version number, keys, fluorescent tubes, LEDs and VACS (Variable Attenuation Control System).

Procedure:

1. Press the three buttons STOP, ENTER and GROUP 2 at the same time. The HCD-F250 enters the GC test mode, and all of the fluorescent tubes and LEDs turn on.
2. From this state, any one of the three modes GROUP 1, GROUP 2 and GROUP 3 can be selected. Go to step 3 to enter the GROUP 1 test mode. Go to step 5 to enter the GROUP 2 test mode. Go to step 11 to enter the GROUP 3 test mode.
3. [GROUP 1 test mode] From the state of step 2, press the GROUP 1 button. Every pressing of the GROUP 1 button advances the following check modes and displays in the given order. Model name display, destination display, MC version display, GC version display, DC version display, VC version display and CC version display.
4. To exit the GC test mode and to return to the STANDBY mode, press the STOP, ENTER and GROUP 2 buttons again.
5. [GROUP 2 test mode] You can enter this mode directly from step 2. When you performed steps 3, perform steps 4, then 1 and 2 before starting the step 5.
   [GROUP 2 test mode] From the GC test mode, press the GROUP 2 button to enter the key check mode. The display: K 1, J 0, V 0 appears.
6. The value after K indicates the number of times that the key is pressed. 1 is displayed because the GROUP 2 button has already been pressed.
7. When other keys are pressed one after another, the key count increases up to 42. The keys which have already been pressed, are not counted.
8. The value after J indicates the number of clicks that the JOG dial is rotated. The clockwise rotation increases the count value. The counter-clockwise rotation decreases the count value.
9. The value after V also indicates amount of rotation of volume control. The clockwise rotation increases the count value. The counter-clockwise rotation decreases the count value.
10. To exit the GC test mode and to return to the STANDBY mode, press the STOP, ENTER and GROUP 2 buttons again.
11. [GROUP 2 test mode] You can enter this mode directly from step 2. When you performed steps 3, perform steps 4, then 1 and 2 before starting the step 5.
    [GROUP 3 test mode] From the GC test mode, press the GROUP 3 button to enter the VACS attenuation check mode. The display: VOL NORMAL appears.
12. To exit the GC test mode and to return to the STANDBY mode, press the STOP, ENTER and GROUP 2 buttons again.

[MC Test Mode]

* This mode checks operation of amplifier and cassette deck.

How to enter the MC test mode:

Press the three buttons of STOP, ENTER and GROUP 3. "EQ CHECK" display on the FL tube and the VOLUME display flash. In addition the LEDs of the JOG dial, FF and REW flash indicating the MC test mode.

Check procedure:

You can perform any of the following five steps. However, it is recommended to perform them in the following order because the skipped cannot be performed if the checks are not performed in the given order.

1. EQ Check Mode

The GEQ becomes maximum when the JOG dial is turned clockwise.

The GEQ becomes minimum when the JOG dial is turned counter-clockwise.

The GEQ comes to center when the FILE SELECT button is pressed.

2. **VOLUME Check Mode**
   The maximum volume is set, and the VOLUME MAX display and the GEQ display are displayed for a moment regardless of the amount of volume rotation.
   The minimum volume is set, and the VOLUME MIN display and the GEQ display are displayed for a moment regardless of the amount of volume rotation.

3. **Deck Check Mode**
   Install a tape to the deck B. Select TAPE B with the FUNCTION button.
   Recording starts and PAUSE is released when the REC button is pressed.
   VIDEO is selected by the input FUNCTION.
   Press the STOP button to stop recording and select TAPE B with the FUNCTION button.
   Rewind the tape by pressing the REW button and stop at the recording start point. Start playback from the recording start point.

4. **High Speed Check Mode-1**
   Install a tape to the deck A. Select TAPE A with the FUNCTION button.
   Press the PLAY button then press the HI-SPEED DUBBING button during playback.
   The normal playback is obtained during normal speed playback and the double speed playback is obtained during the double speed playback.

5. **High Speed Check Mode-2**
   Install a tape to the deck B. Select TAPE B with the FUNCTION button.
   Press the REC button. When the PAUSE is released , recording is started.
   When the HI-SPEED DUBBING button is pressed during recording, the double speed recording is established only when the button is pressed.

[Aging Mode]

The decks A and B are operated automatically for aging purpose. When errors occur during aging, causes of errors are displayed and the aging mode is stopped.

How to enter the aging mode

1. Turn on the main power. Install a playback tape to deck A and install a blank tape to deck B.
2. Select TAPE A with the FUNCTION button.
3. Press the three buttons of STOP , ENTER and GROUP ENTRY at the same time to enter the aging mode.

How to exit the aging mode.

Turn off the main power.

1. Rewind the tapes A and B. Tapes stop at the shut-off of tape A and the aging mode advances to the next step.
   The message: TAPE A AG-1 appears.
2. The tape A is played back in the FWD mode. After two minutes of the FWD playback, the aging mode advances to the next step.
   The message: TAPE A AG-2 appears.
3. The tape A runs in fast forward. After two minutes of fast forward, or at the shut-off point, the tape is stopped and the aging mode advances to the next step.
   The message: TAPE A AG-3 appears.
4. The tape A is played back in the RVS mode. After two minutes of the RVS playback, the aging mode advances to the next step.
   The message: TAPE A AG-4 appears.
5. The tape A is rewound and stops at the shut-off. The aging mode advances to the next step.
   The message: TAPE A AG-5 appears.
6. The tape B is played back in the FWD mode. After two minutes of the FWD playback, the aging mode advances to the next step.
   The message: TAPE B AG-2 appears.
7. The tape B runs in fast forward. After two minutes of fast forward, or at the shut-off point, the tape is stopped and the aging mode advances to the next step.
   The message: TAPE B AG-3 appears.
8. The tape B is played back in the RVS mode. After two minutes of the RVS playback, the aging mode advances to the next step.
   The message: TAPE B AG-4 appears.
9. The tape B is rewound and stops at the shut-off. The aging mode advances to the next step.
   The message: TAPE B AG-5 appears.

[Function Change Mode]

* Select either VIDEO or MD of the external FUNCTION input.

Procedure:

1. Turn off the power.
2. Press the two buttons ENTER and POWER at the same time. The main power is turned on and the other function of the previous function is selected and displayed. “MD” or “VIDEO”

[AM TUNER STEP 9 kHz/10 kHz Selection Mode]

* Either the 9 kHz step or 10 kHz step can be selected for the AM channel step.

Procedure:

1. Turn on the power and select TUNER using the FUNCTION button.
2. Select AM with the TUNER/BAND button and turn off the power.
3. Press the two buttons ENTER and POWER at the same time. The main power is turned on and the other frequency step of the previous mode is selected and displayed. “AM 9k STEP” or “AM 10k STEP”

SECTION 4
MECHANICAL ADJUSTMENT

• TAPE MECHANISM DECK SECTION

Precaution

1. Clean the following parts with a denatured alcohol-moistened swab:
   record/playback heads pinch rollers
   erase head rubber belts
   capstan idlers
2. Demagnetize the record/playback head with a head demagnetizer.
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

• Torque Measurement

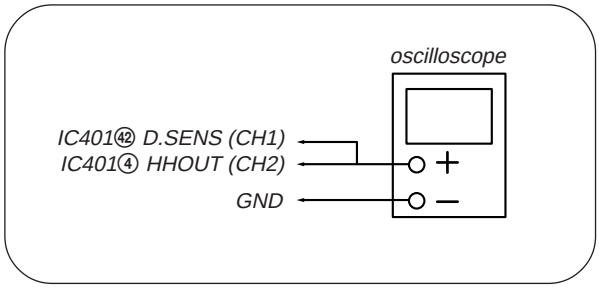
Mode	Torque meter	Meter reading
FWD	CQ-102C	31 to 71 g • cm (0.43 – 0.98 oz • inch)
FWD back tension	CQ-102C	2 to 6 g • cm (0.02 – 0.08 oz • inch)
REV	CQ-102RC	31 to 71 g • cm (0.43 – 0.98 oz • inch)
REV back tension	CQ-102RC	2 to 6 g • cm (0.02 – 0.08 oz • inch)
FF/REW	CQ-201B	71 to 143 g • cm (0.98 – 1.99 oz • inch)
FWD tension	CQ-403A	100 g or more (3.53 oz or more)
REV tension	CQ-403R	100 g or more (3.53 oz or more)

• CD MECHANISM DECK SECTION

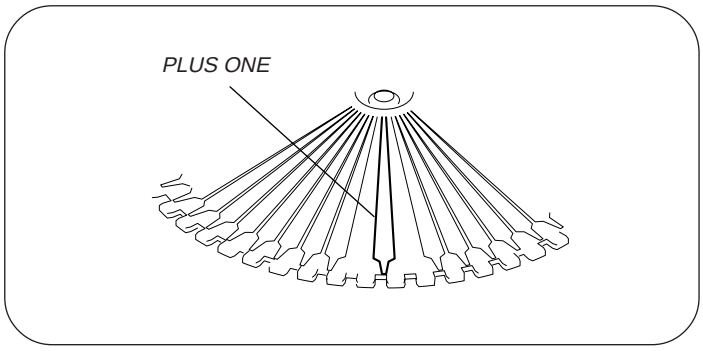
To adjust the mechanism section, enter the mechanism section adjustment mode.
For how to enter the mechanism section adjustment mode, refer to each adjustment section.

DISC SENSOR ALIGMENT

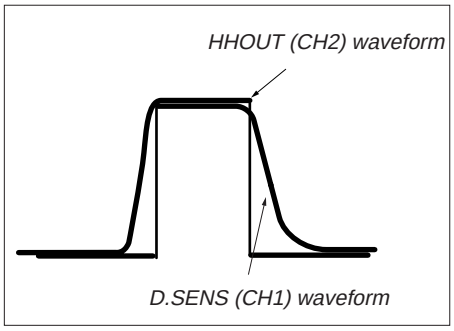
1. Make sure that there is no disc in the unit.
2. Connect an oscilloscope to IC401㊷, IC402④ of the MAIN board.

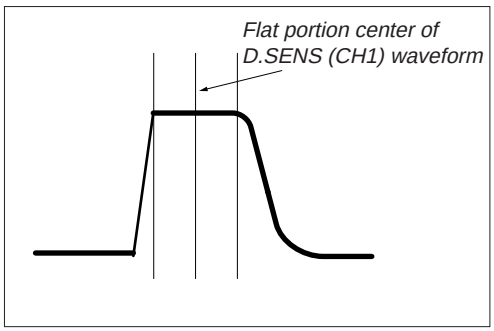


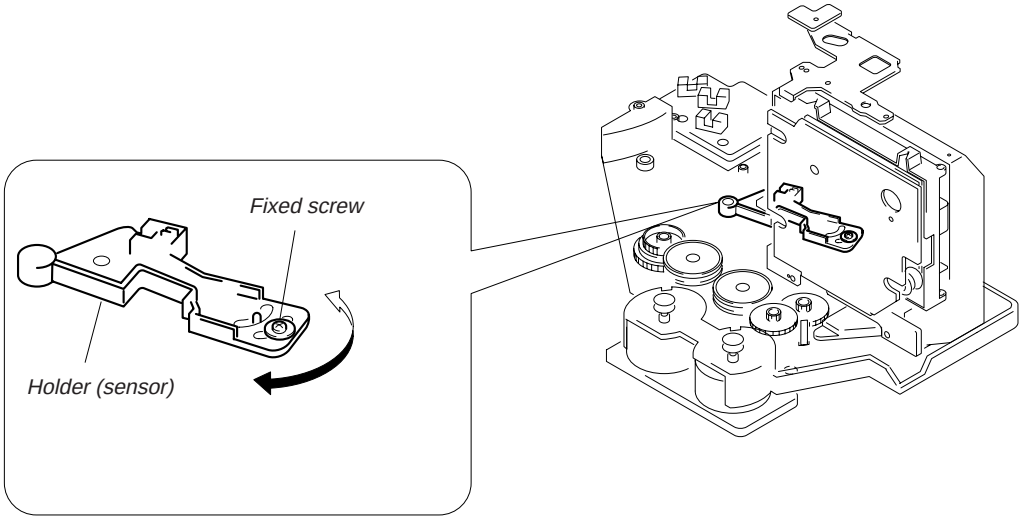
3. Turn the power switch on.
4. Press the ■ button, ENTER button and GROUP 5 button simultaneously.



5. The disc table rotates in the clockwise direction. The disc table rotation time is displayed with ‘’PLUS ONE” slit as a measuring point.
6. Measure the waveform of the oscilloscope when the disc table is rotating.
7. Move the holder (sensor) center so that the flat portion center at the top of the D.SENS (CH1) input waveform and the ‘’H” center of HHOUT (CH2) coincide.





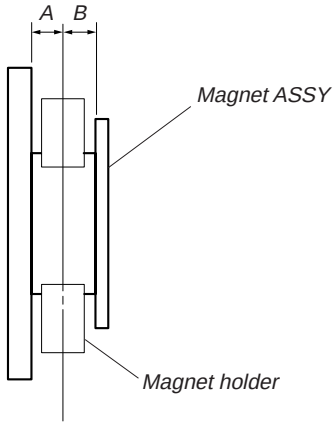


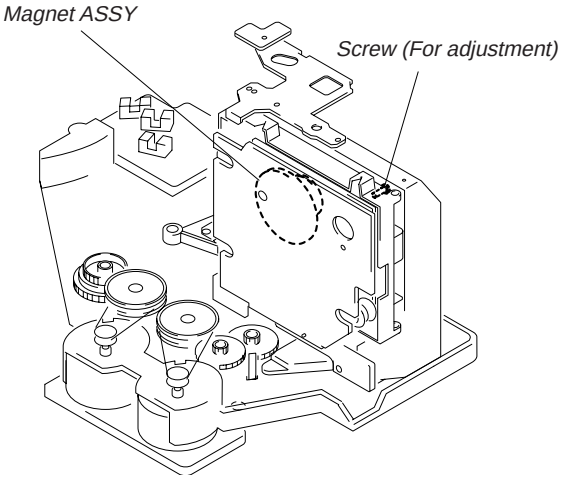
8. Tighten the fixed screw to fix the disc table, then press the CLEAR button.
9. The disc table rotates in the counterclockwise direction. Measure the waveform and make sure that the flat portion center at the top of the D.SENS (CH1) input waveform and the ‘’H” center of HHOUT (CH2) coincide.
10. If the adjustment is not successful, press the CLEAR button to rotate the disc table in the clockwise direction, and perform steps 6 to 9.

Note: During the adjustment mode, the rotational direction is switched each time the CLEAR button is pressed.
Pressing the CHECK button enters the loading mode which will be described later. Pressing the CLEAR button rotates the disc table again.

MAGNET ASSY ALIGMENT

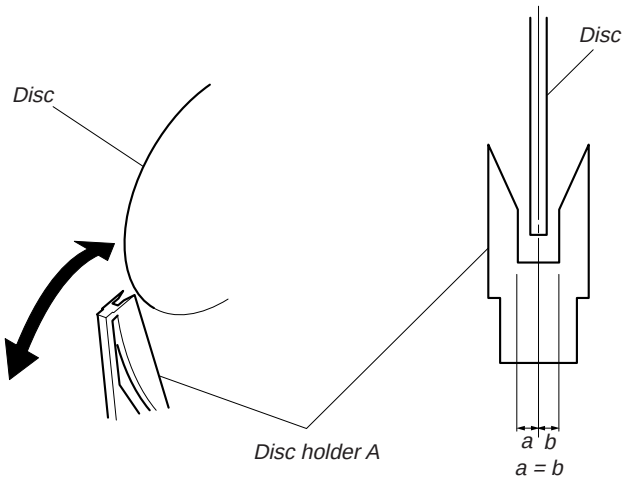
1. Check that there is no disc in the unit and then turn ON the power. Open the door, and set a disc in the PLUS ONE slit.
2. Close the door, and while pressing the ■ button, ENTER button and GROUP 5 button simultaneously.
3. Press the CHECK button, and set the loading mode.
4. Press the + ▷▷▷▷▷‖ button and chuck the disc.
5. Adjust the magnet assembly and magnet holder so that A=B as shown in the figure.

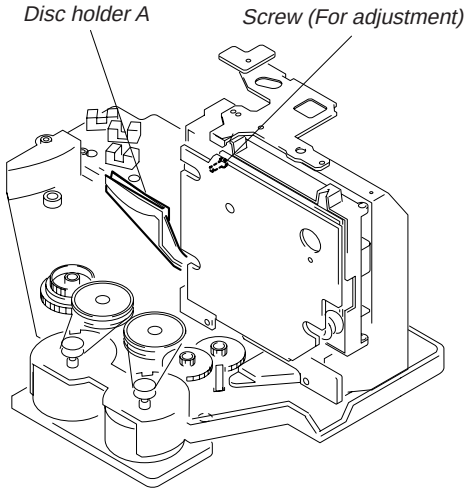




DISC HOLDER A ALIGMENT

1. Check that there is no disc in the unit and then turn ON the power. Open the door, and set a disc in the PLUS ONE slit.
2. Close the door, and while pressing the ■ button, ENTER button and GROUP 5 button simultaneously.
3. Press the CHECK button, and set the loading mode.
4. Press the + ▷▷▷▷▷‖ button and chuck the disc.
5. Press + ▷▷▷▷▷‖ or ‖◁◁◁◁ – button to stop the disc holder A slightly away from the disc.
6. Rotate and adjust the adjusting screw so that the center of the disc and that of the disc holder coincide.





SECTION 5
ELECTRICAL ADJUSTMENTS

DECK SECTION 0 dB=0.775 V

1. Demagnetize the record/playback head with a head demagnetizer.
2. Do not use a magnetized screwdriver for the adjustments.
3. After the adjustments, apply suitable locking compound to the parts adjust.
4. The adjustments should be performed with the rated power supply voltage unless otherwise noted.
5. The adjustments should be performed in the order given in this service manual. (As a general rule, playback circuit adjustment should be completed before performing recording circuit adjustment.)
6. The adjustments should be performed for both L-CH and R-CH.
7. Switches and controls should be set as follows unless otherwise specified.

• Test Tape

Tape	Signal	Used for
P-4-A100	10 kHz, –10 dB	Azimuth Adjustment
WS-48B	3 kHz, 0 dB	Tape Speed Adjustment
P-4-L300	315 Hz, 0 dB	Level Adjustment

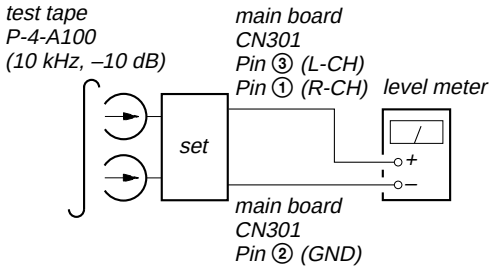
Record/Playback Head Azimuth Adjustment

DECK A **DECK B**

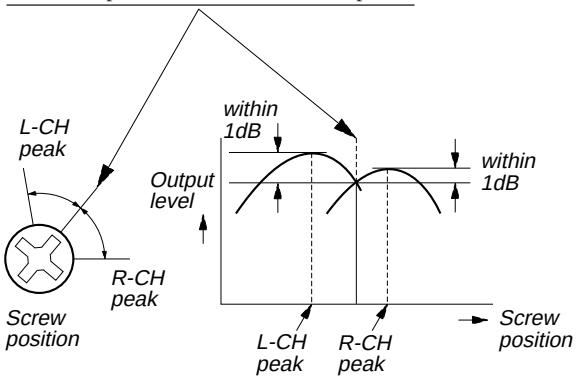
Note: Perform this adjustments for both decks

Procedure:

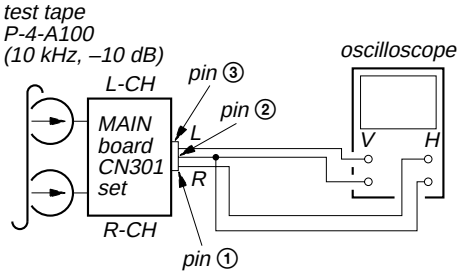
1. Mode: Playback

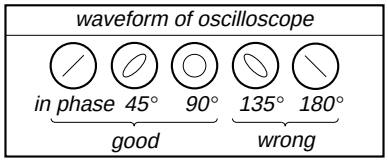


2. Turn the adjustment screw and check output peaks. If the peaks do not match for L-CH and R-CH, turn the adjustment screw so that outputs match within 1dB of peak.



3. Mode: Playback





4. After the adjustments, apply suitable locking compound to the pats adjusted.

Adjustment Location: Playback Head (Deck A).
Record/Playback/Erase Head (Deck B).

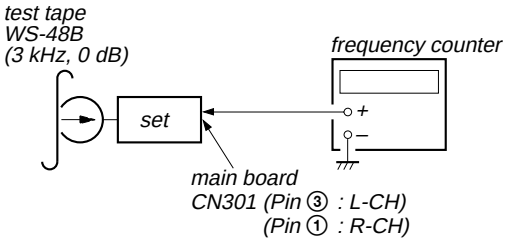
Tape Speed Adjustment DECK B

Note: Start the Tape Speed adjustment as below after setting to the test mode.
In the test mode, the tape speed is high during pressing the HI-SPEED DUBBING button.

Procedure:

1. Turn the power switch on.
2. Press the ■ button, ENTER button and GROUP 3 button simultaneously.
   (The "VOLUME" on the fluorescent indicator tube will blink while in the test mode.)
   To exit from the test mode, press the I/⏻ button.

Mode: Playback



1. Insert the WS-48B into the deck B.
2. Press the ▷ button on the deck B.
3. Press the HI-SPEED DUBBING button in playback mode.
   Then at HIGH speed mode.
4. Adjust RV1001 on the LEAF SW board do that frequency counter reads 6,000 ± 180 Hz.
5. Press the HI-SPEED DUBBING button.
   Then back to NORMAL speed mode.
6. Adjust RV1002 on the LEAF SW board so that frequency counter reads 3,000 ± 90 Hz.

Adjustment Location: LEAF SW board

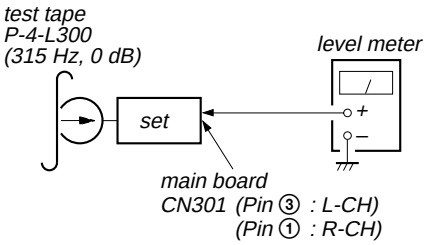
Sample Value of Wow and filter

W,RMS (JIS) within 0.3%
(test tape: WS-48B)

Playback level Adjustment DECK A DECK B

Procedure:

Mode: Playback



Deck A is RV311 (L-CH) and RV411 (R-CH), Deck B is RV301 (L-CH) and RV401 (R-CH) so that adjustment within adjustment level as follows.

Adjustment Level:

CN301 PB level: 301.5 to 338.3 mV (–8.2 to –7.2 dB) level difference between the channels: within ±0.5 dB

Adjustment Location: AUDIO board

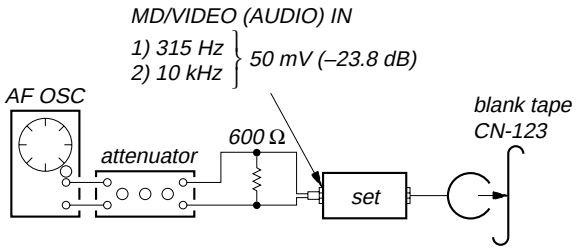
REC Bias Adjustment DECK B

Procedure:

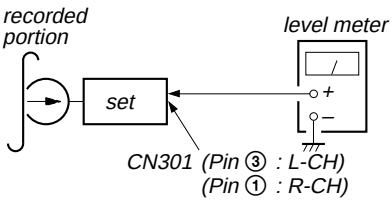
INTRODUCTION

When set to the test mode performed in Tape Speed Adjustment, when the tape is rewound after recording, the "REC memory mode" which rewinds only the recorded portion and playback is set.
This "REC memory mode" is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO.
(If do not operation of stopped from recording complete, after selecting DECK B with the FUNCTION button, and press |◁◁ ◁◁ – button then rewind to recording start position.)

1. Press [FUNCTION] button to select VIDEO. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck B.
3. After press [● REC] button, press P button, then recording start.
4. Mode: Record



5. Mode: Playback



6. Confirm playback the signal recorded in step 3 become adjustable level as follows.
   If these levels do not adjustable level, adjustment the RV341 (L-CH) and RV441 (R-CH) on the AUDIO board to repeat steps 4 and 5.

Adjustable level: Playback output of 315 Hz to playback output of 10 kHz: ±1.0 dB

Adjustment Location: AUDIO board

REC Level Adjustment DECK B

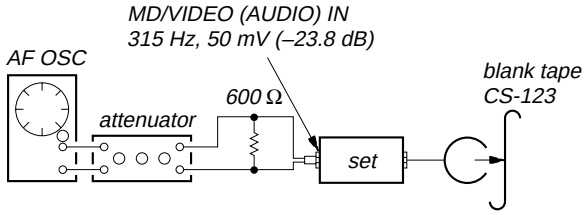
Procedure:

INTRODUCTION

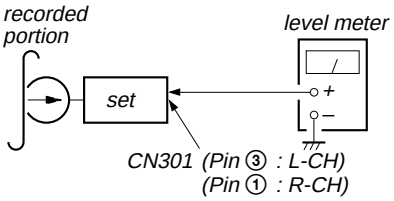
When set to the test mode performed in Tape Speed Adjustment, when the tape is rewound after recording, the "REC memory mode" which rewinds only the recorded portion and playback is set.
This "REC memory mode" is convenient for performing this adjustment. During recording, the input signal FUNCTION will automatically switch to VIDEO.
(If do not operation of stopped from recording complete, after selecting DECK B with the FUNCTION button, and press |◁◁ ◁◁ – button then rewind to recording start position.)

1. Press FUNCTION button to select VIDEO. (This step is not necessary if the above test mode has already been set.)
2. Insert a tape into deck B.
3. After press ● REC button, press ❚❚ button, then recording start.

4. Mode: Record



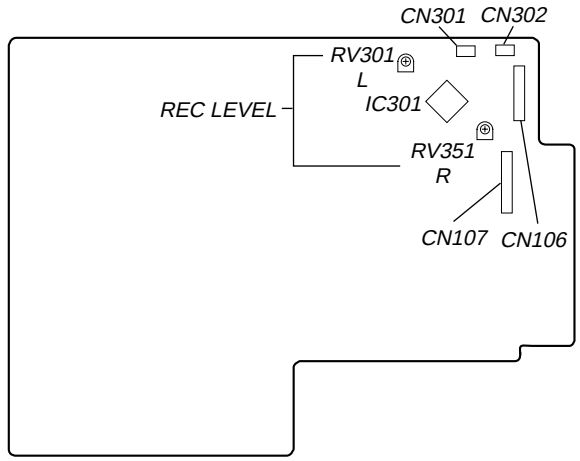
5. Mode: Playback



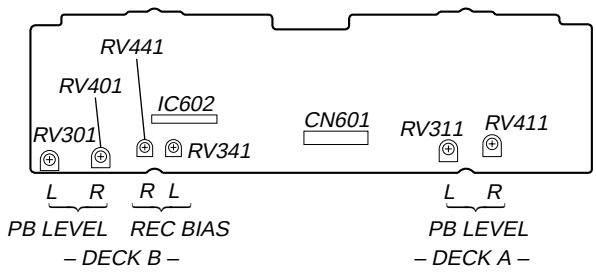
6. Confirm playback the signal recorded in step 3 become adjustable level as follows.
   If these levels do not adjustable level, adjustment the RV301 (L-CH) and RV351 (R-CH) on the MAIN board to repeat steps 4 and 5.

Adjustable level:
CN301 PB level: 47.2 to 53.0 mV (–24.3 to –23.3 dB)
Adjustment Location: MAIN board

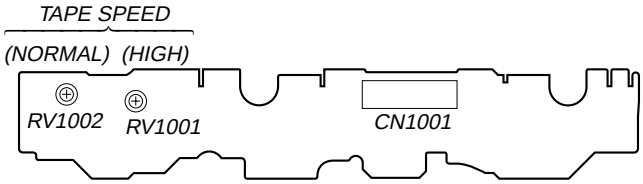
[MAIN BOARD] (Component Side)



[AUDIO BOARD] (Component Side)



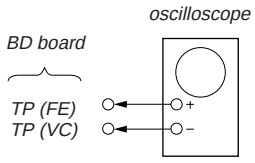
[LEAF SW BOARD] (Component Side)



CD SECTION

Note :

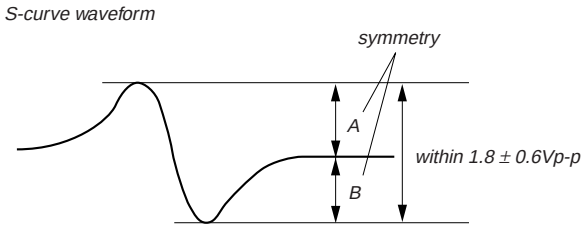
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.



S Curve Check

Procedure :

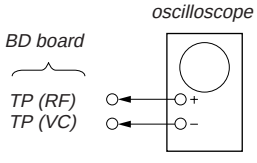
1. Press the I/⏻ button to turn ON the power .
2. Open the front cover, and press the CD PLUS ONE button.
3. Set the disc (YEDS-18) into the "PLUS ONE" slit.
4. Close the front cover, and chuck the disc.
5. Press the I/⏻ button to turn OFF the power.
6. Connect the oscilloscope to TP (FE) of the BD board.
7. Connect TP (ADJ) of the MAIN board and connect TP (GND) with a lead wire.
8. Press the I/⏻ button to turn ON the power.
9. The first track will be played back automatically. When the CHECK button is pressed, "S JI" will be displayed on the fluorescent indicator tube, and focus search will be repeated.
10. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 1.8 ± 0.6 Vp-p.



11. Turn OFF the power, and remove the lead wire connected at step 7.

Note : • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

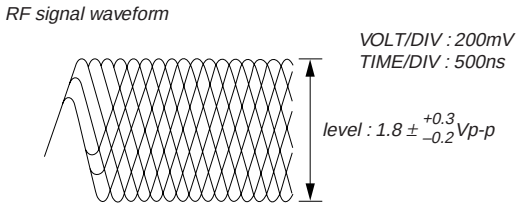
RF Level Check



Procedure :

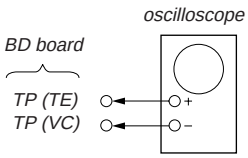
1. Press the I/⏻ button to turn ON the power.
2. Open the front cover, and press the CD PLUS ONE button.
3. Set the disc (YEDS-18) into the "PLUS ONE" slit.
4. Close the front cover, and chuck the disc.
5. Press the I/⏻ button to turn OFF the power.
6. Connect the oscilloscope to TP (RF) of the BD board.
7. Connect TP (ADJ) of the MAIN board and connect TP (GND) with a lead wire.
8. Press the I/⏻ button to turn ON the power.
9. Playback the fifth track of the disc.
10. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.
11. Turn OFF the power, and remove the lead wire connected at step 7.

Note : A clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.



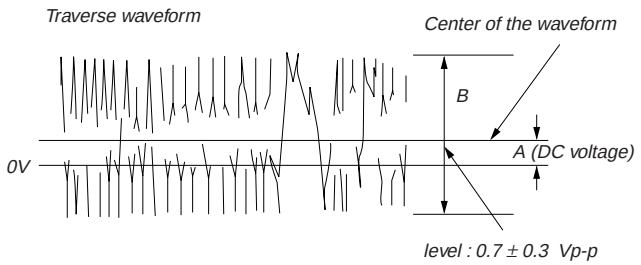
E-F Balance (Traverse) Check

The procedure for this checking method differs for when a general remote control unit is used and not used.

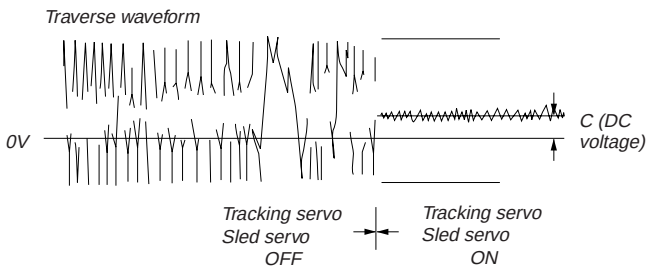


When a general remote commander is used:

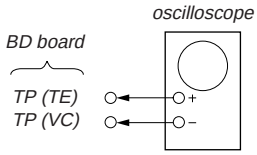
1. Press the I/⏻ button to turn ON the power.
2. Open the front cover, and press the CD PLUS ONE button.
3. Set the disc (YEDS-18) into the "PLUS ONE" slit.
4. Close the front cover, and chuck the disc.
5. Press the I/⏻ button to turn OFF the power.
6. Connect the oscilloscope to TP (TE) of the BD board.
7. Connect TP (ADJ) of the MAIN board and connect TP (GND) with a lead wire.
8. Press the I/⏻ button to turn ON the power.
9. Playback the fifth track of the disc.
10. Press the 3 button on the remote commander. (The tracking servo and the sledding servo are turned OFF.)
11. Check the level B of the oscilliscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
    Confirm the following :
    A/B x 100 = less than ± 10%



12. Press the 8 button on the remote control unit. (The tracking servo and sledding servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 11.

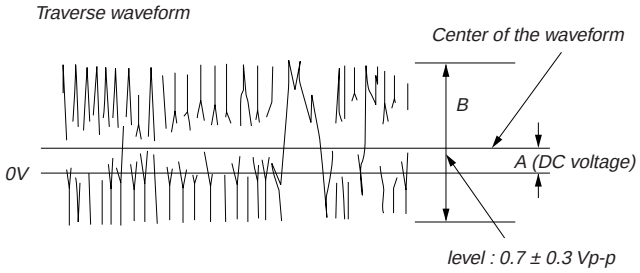


13. Turn OFF the power, and remove the lead wire connected at step 7.

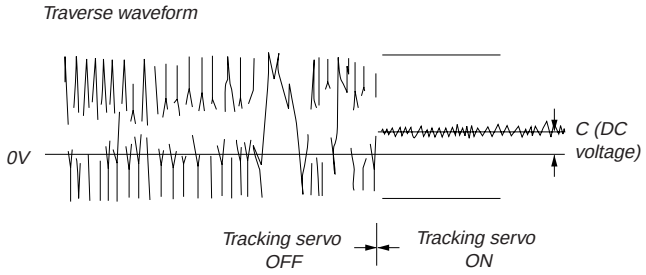


When a general remote commander is not used:

1. Solder lead wires to TP (DVDD) and TP (TOFF) on the BD board severally.
2. Connect the oscilloscope to TP (TE) of the BD board.
3. Press the POWER button to turn ON the power.
4. Open the front cover, and press the CD PLUS ONE button.
5. Set the disc (YEDS-18) into the “PLUS ONE” slit.
6. Close the front cover, and chuck the disc.
7. Playback the fifth track of the disc.
8. Short-circuit the lead wire connected at step 1. (The tracking servo is turned OFF)
9. Check the level B of the oscilliscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
   Confirm the following :
   A/B x 100 = less than ± 10%



10. Disconnect the lead wire short-circuited at step 8. (The tracking servo is turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 8.

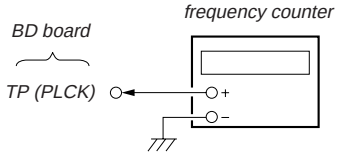


11. Turn OFF the power, and remove the lead wire connected at step 1.

RF PLL Free-run Frequency Check

Procedure :

1. Connect the frequency counter to TP (PLCK) of the BD board.



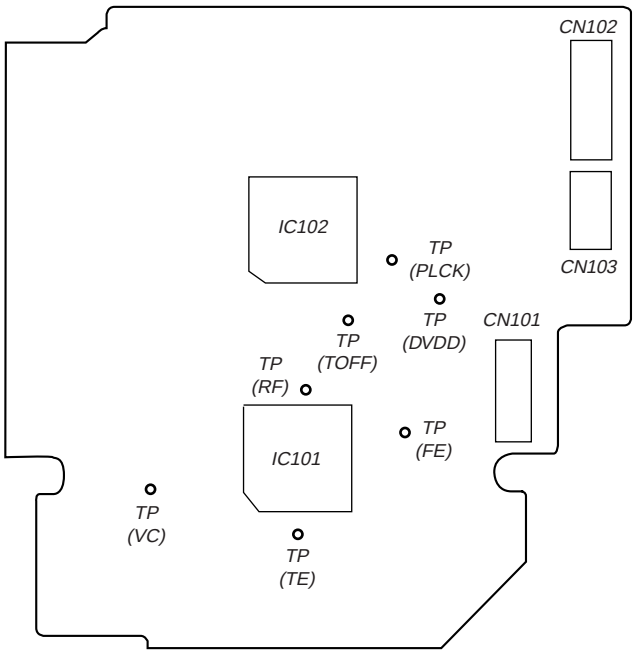
2. Press the POWER button to turn ON the power.
3. Open the front cover, and press the CD PLUS ONE button.
4. Set the disc (YEDS-18) into the “PLUS ONE” slit.
5. Close the front cover, and chuck the disc.
6. Playback the fifth track of the disc.
7. Confirm that reading on frequency counter is 4.3218 MHz ± 30 kHz.

About RV402 on the MAIN board

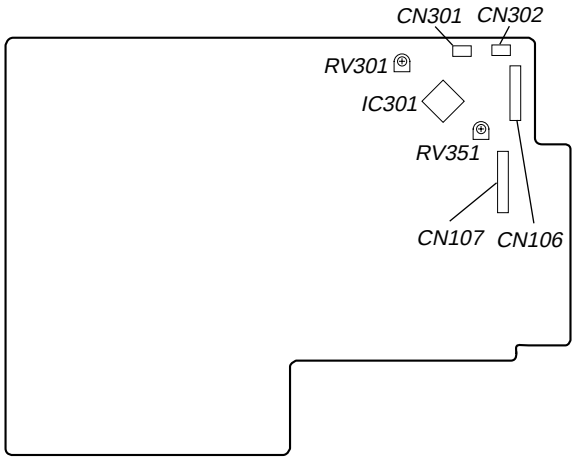
RV402 of the MAIN board requires no adjustments. Please note that it should be dixed to mechanical center position when you moved and do not know origin position.

Adjustment Location :

[BD BOARD] — CONDUCTOR SIDE —

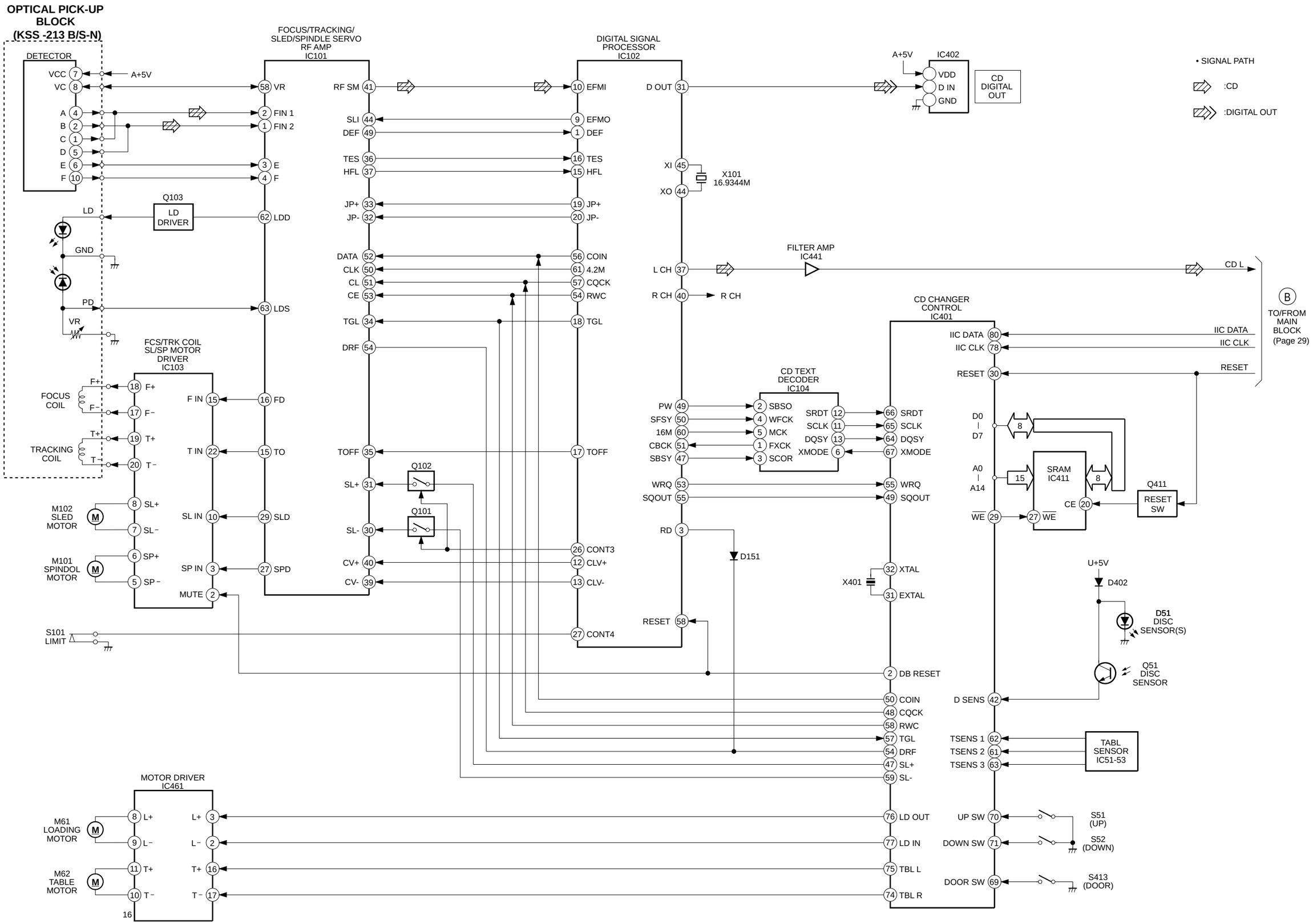


[MAIN BOARD] — COMPONENT SIDE —

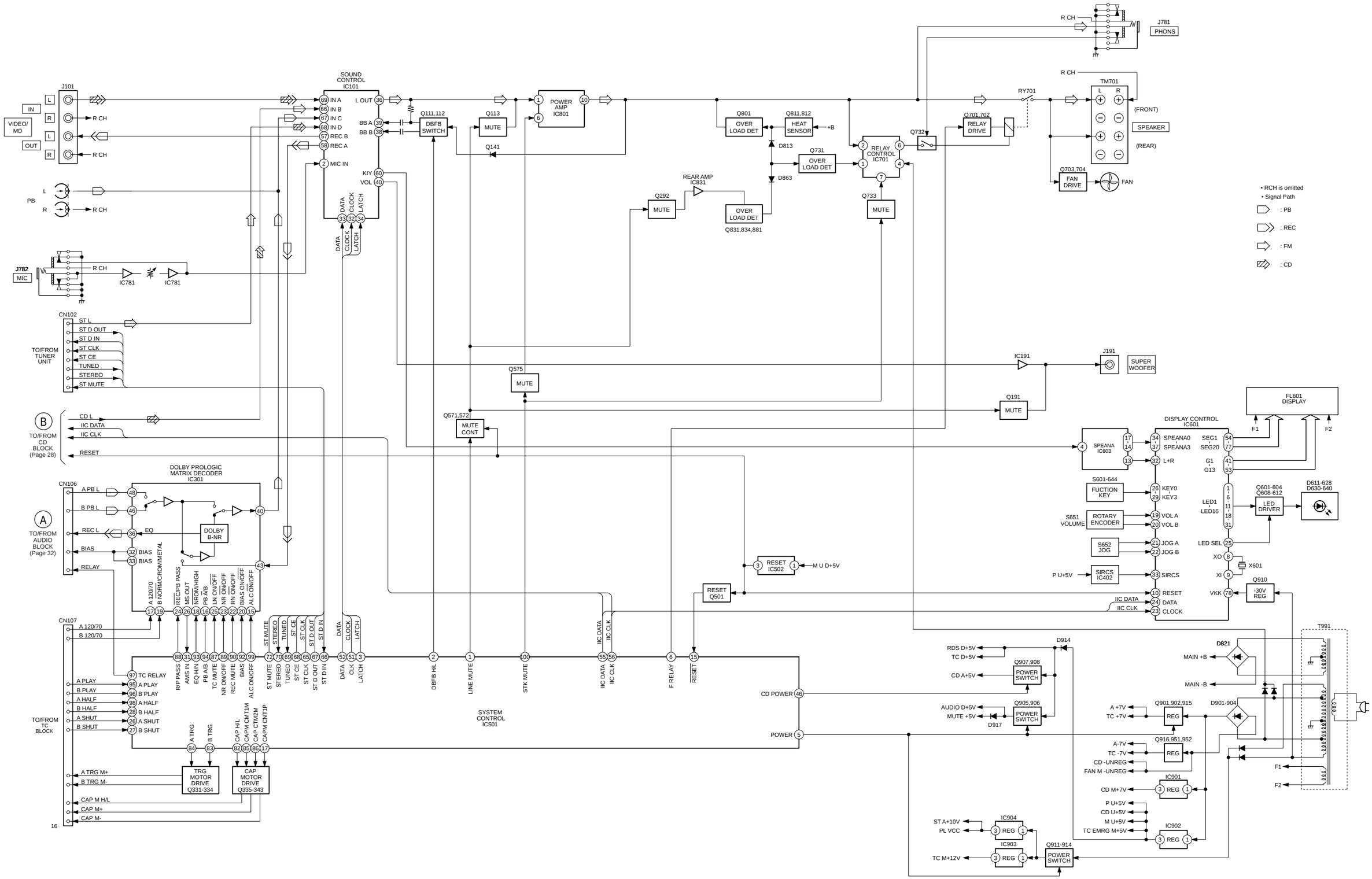


SECTION 6
DIAGRAMS

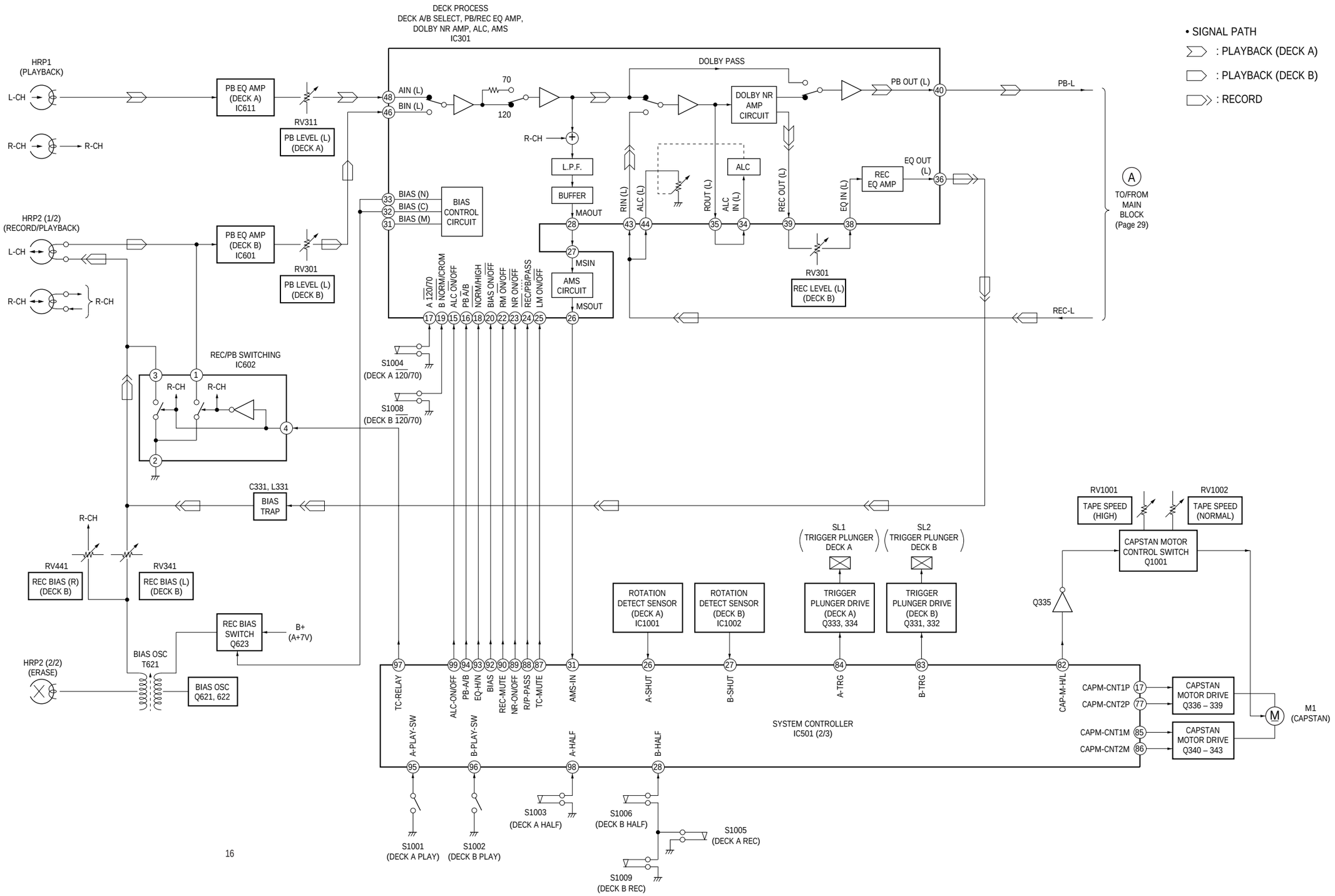
6-1. BLOCK DIAGRAM — CD SECTION —



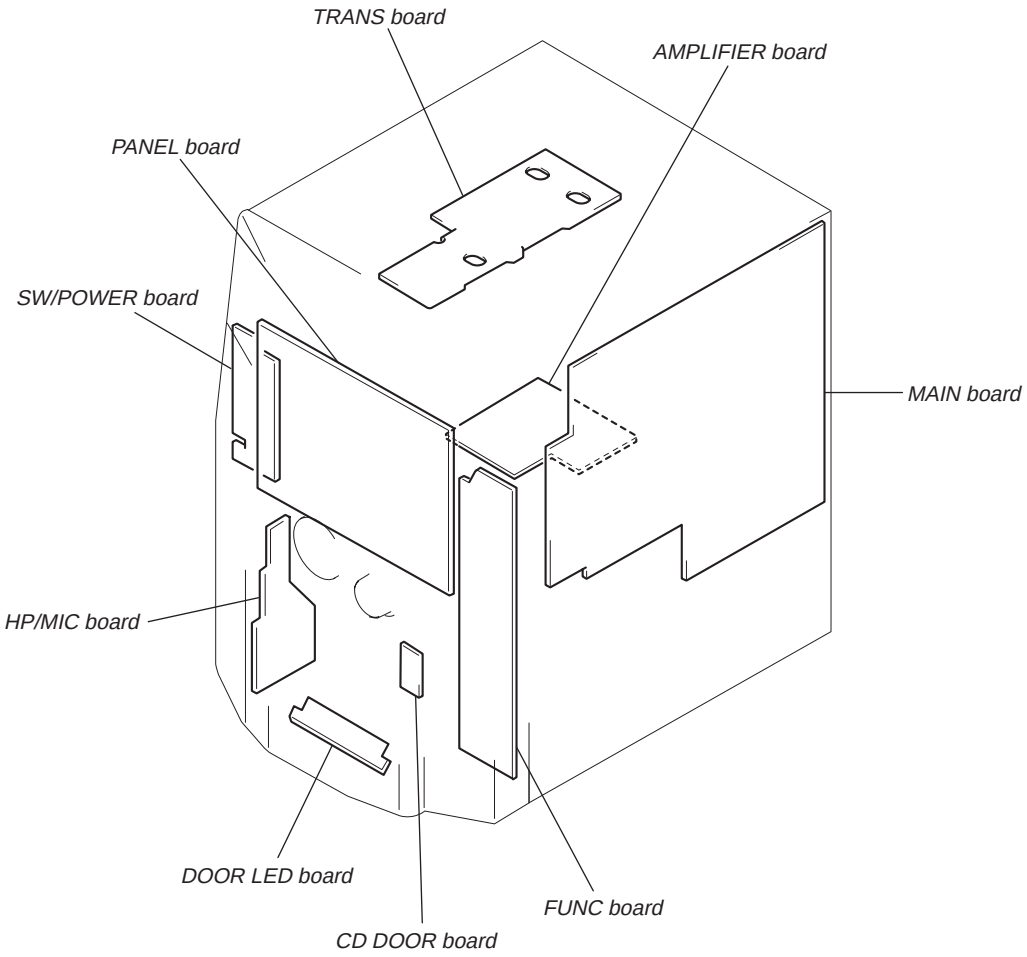
6-2. BLOCK DIAGRAM — MAIN SECTION —

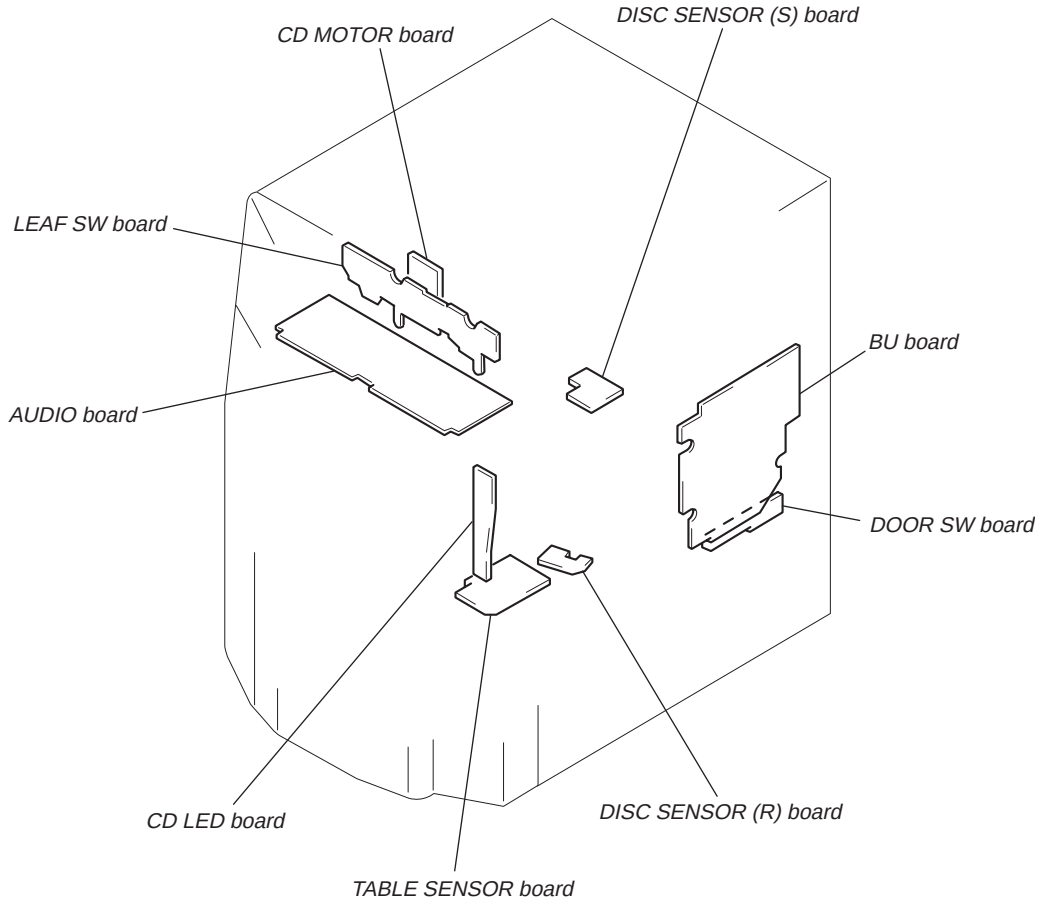


6-3. BLOCK DIAGRAM — AUDIO SECTION —



6-4. CIRCUIT BOARDS LOCATION





THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this necessary note is printed in each block.)

For schematic diagrams.

Note:

- All capacitors are in µF unless otherwise noted. pF: µµF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.
- : panel designation.

Note:	**Note:**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une piéce portant le numéro spécifié.

- B+ : B+ Line.
- B– : B– Line.
- : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
- Circled numbers refer to waveforms.
- Signal path.
  - : FM
  - : VIDEO/MD
  - : PB (DECK A)
  - : PB (DECK B)
  - : REC (DECK B)
  - : CD
  - : CD DIGITAL
- Abbreviation
  CND : Canadian

For printed wiring boards.

Note:

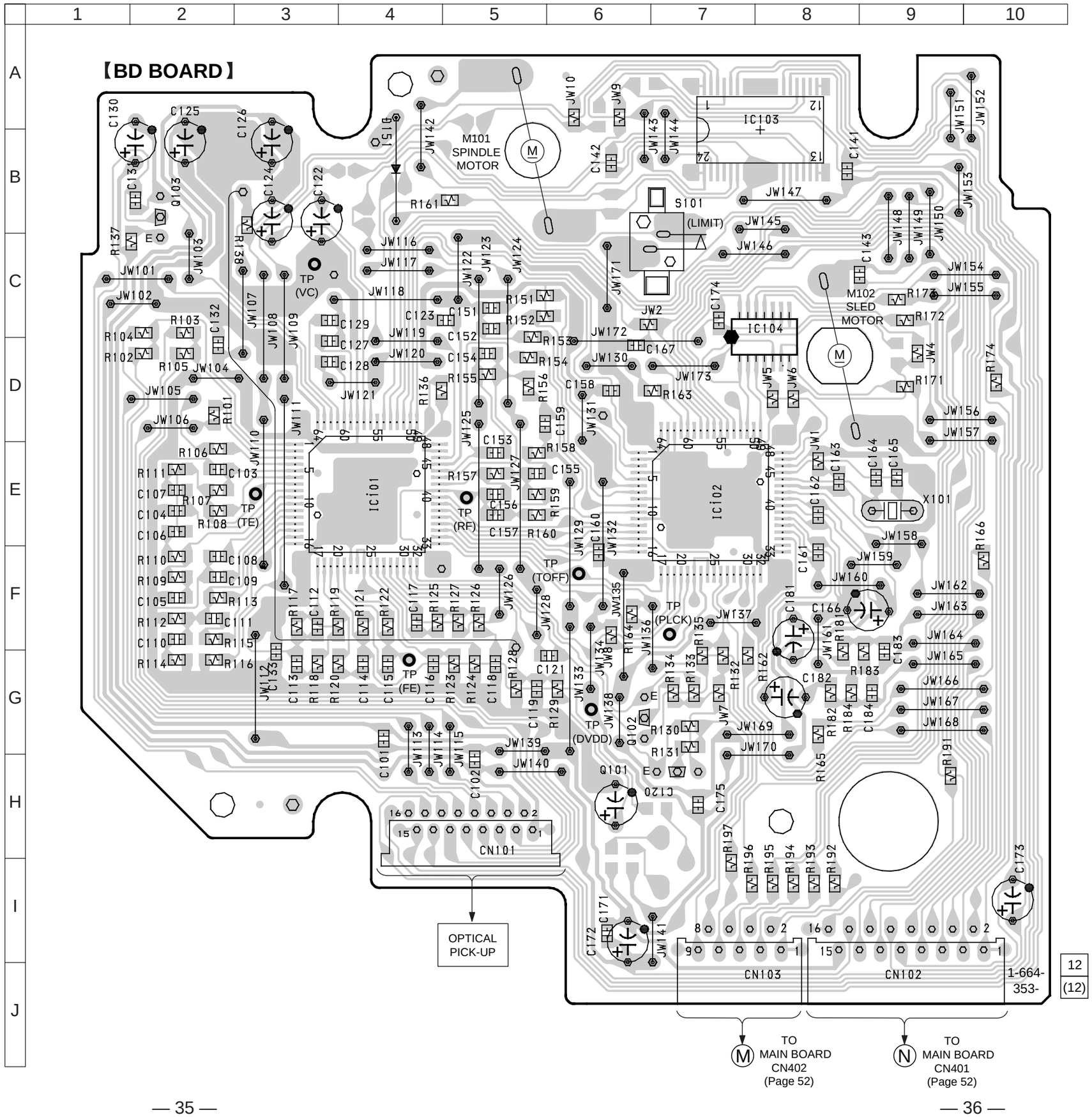
- ○——— : parts extracted from the component side.
- △ : internal component.
- ▒▒▒ : Pattern from the side which enables seeing.

6-5. PRINTED WIRING BOARD — BD SECTION —

• See page 33 for Circuit Boards Location.

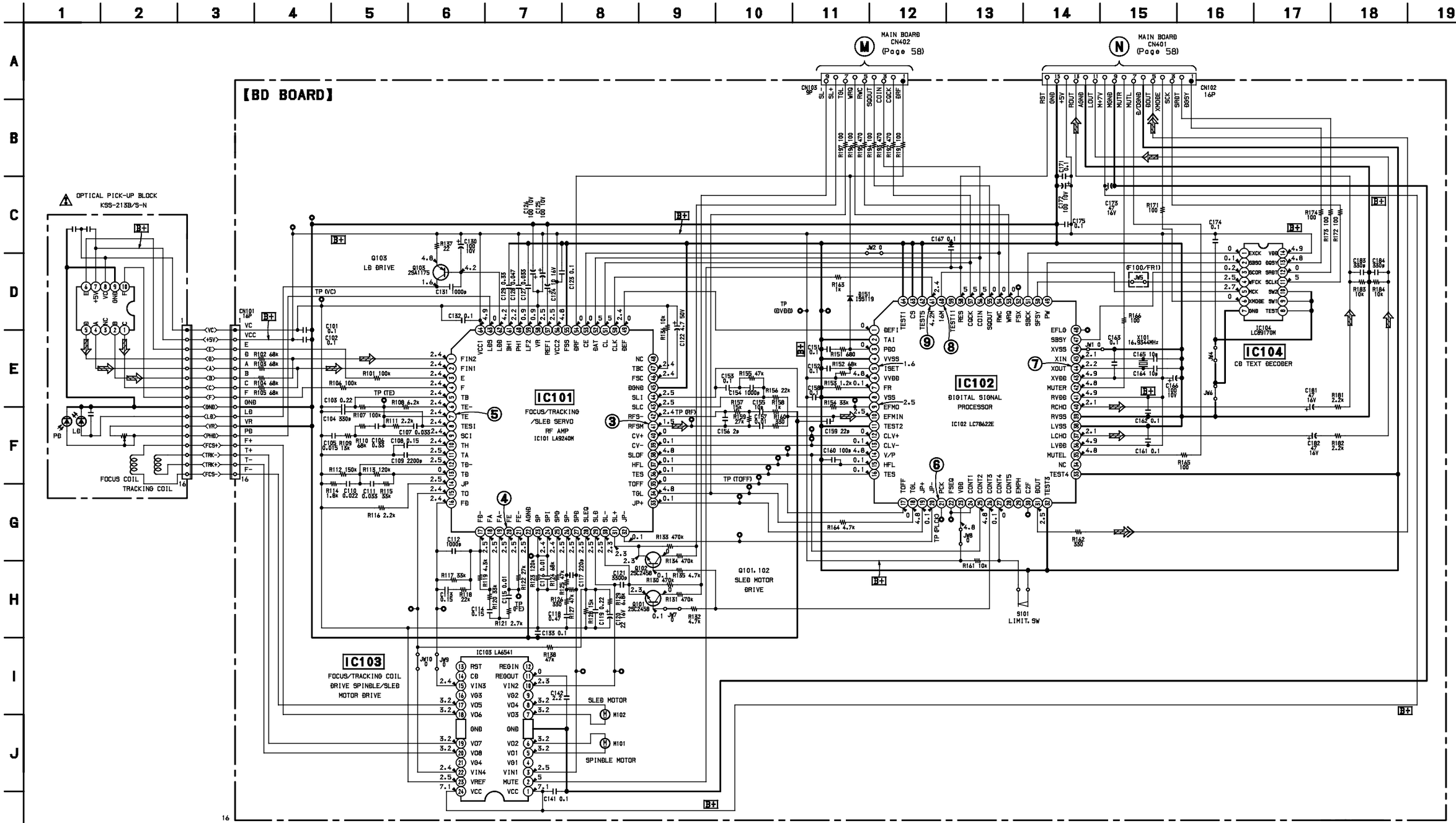
• **Semiconductor Location**

Ref. No.	Location
D151	B-4
IC101	E-4
IC102	E-7
IC103	B-8
IC104	C-8
Q101	H-6
Q102	G-6
Q103	B-2



6-6. SCHEMATIC DIAGRAM — BD SECTION —

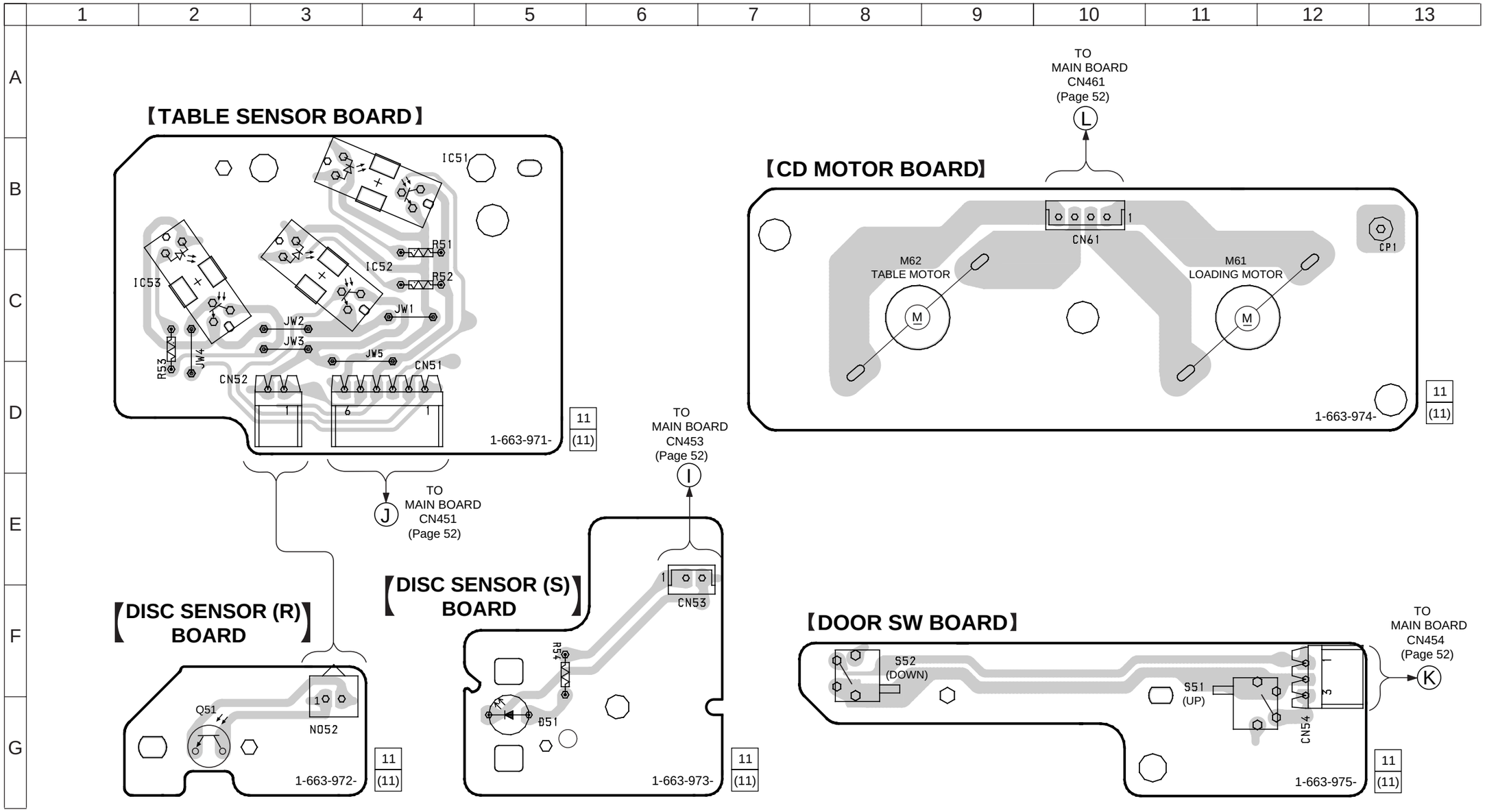
• See page 71 for Waveforms. • See page 72 for IC Pin Functions.



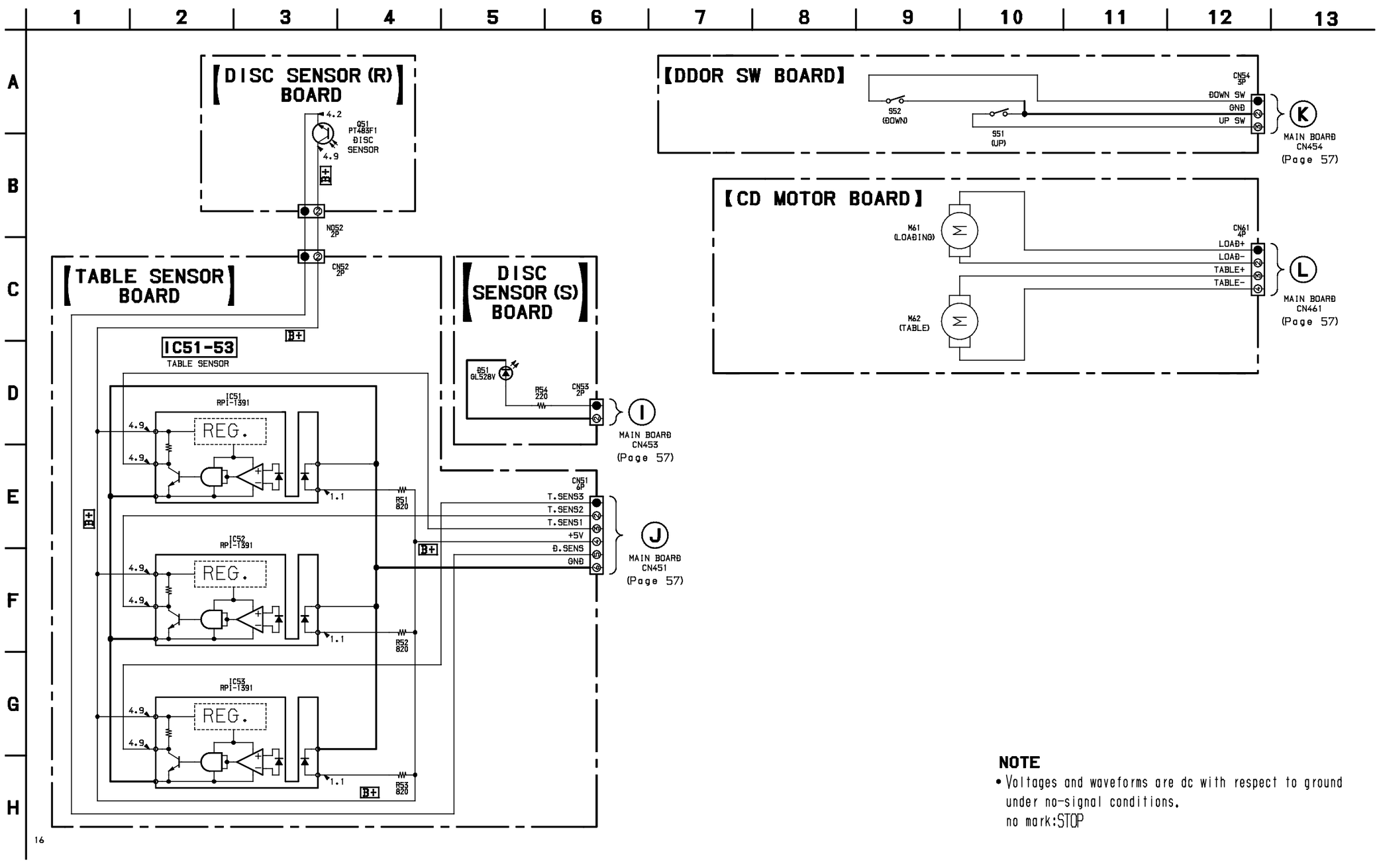
NOTE

• Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark:STOP

6-7. PRINTED WIRING BOARD — CD MOTOR SECTION — • See Page 33 for Circuit Boards Location.



6-8. SCHEMATIC DIAGRAM — CD MOTOR SECTION —



NOTE

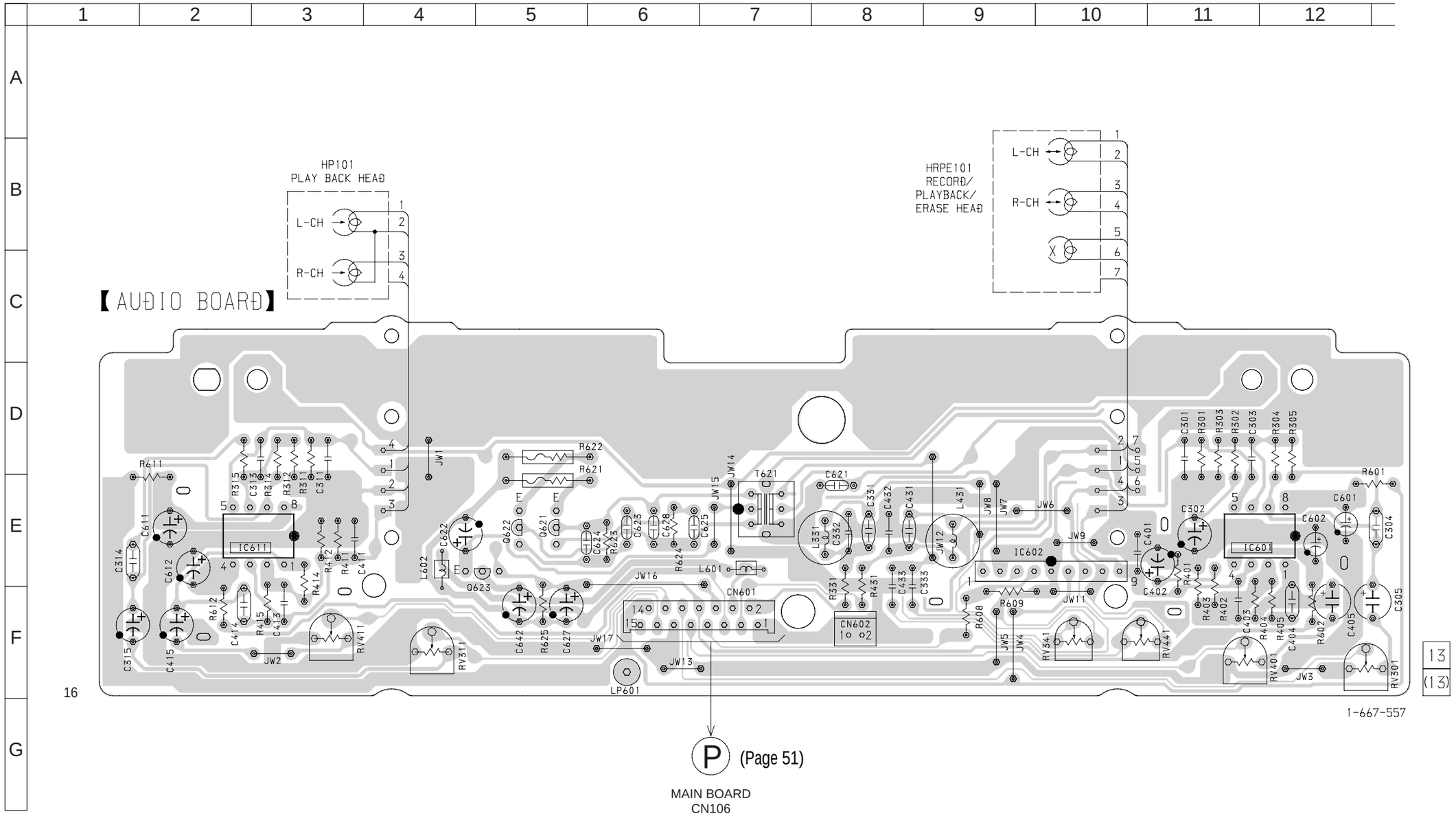
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP

6-9. PRINTED WIRING BOARD — AUDIO SECTION —

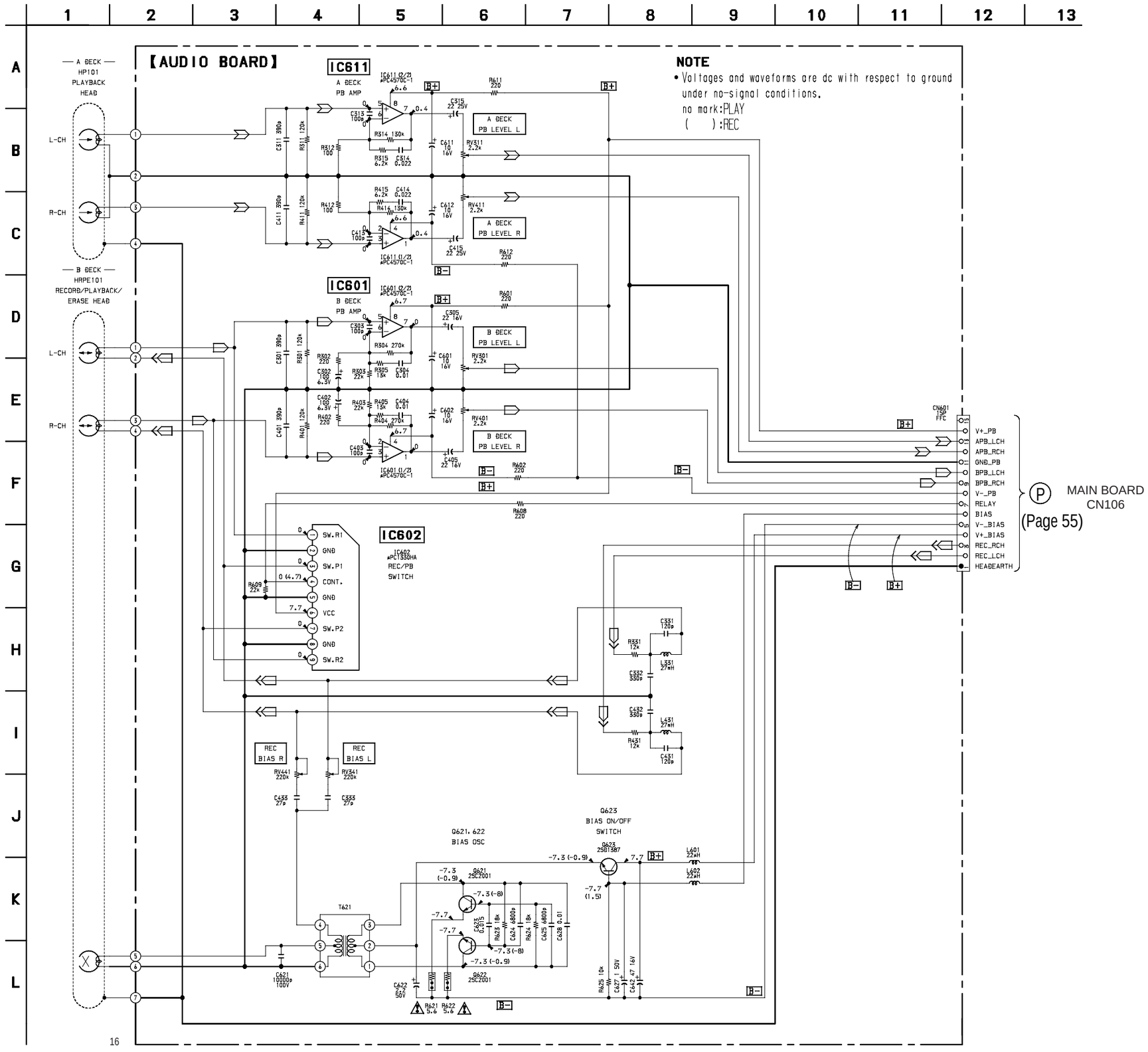
• See page 33 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
IC601	E-12
IC602	E-9
IC611	E-2
Q621	E-5
Q622	E-5
Q623	E-5

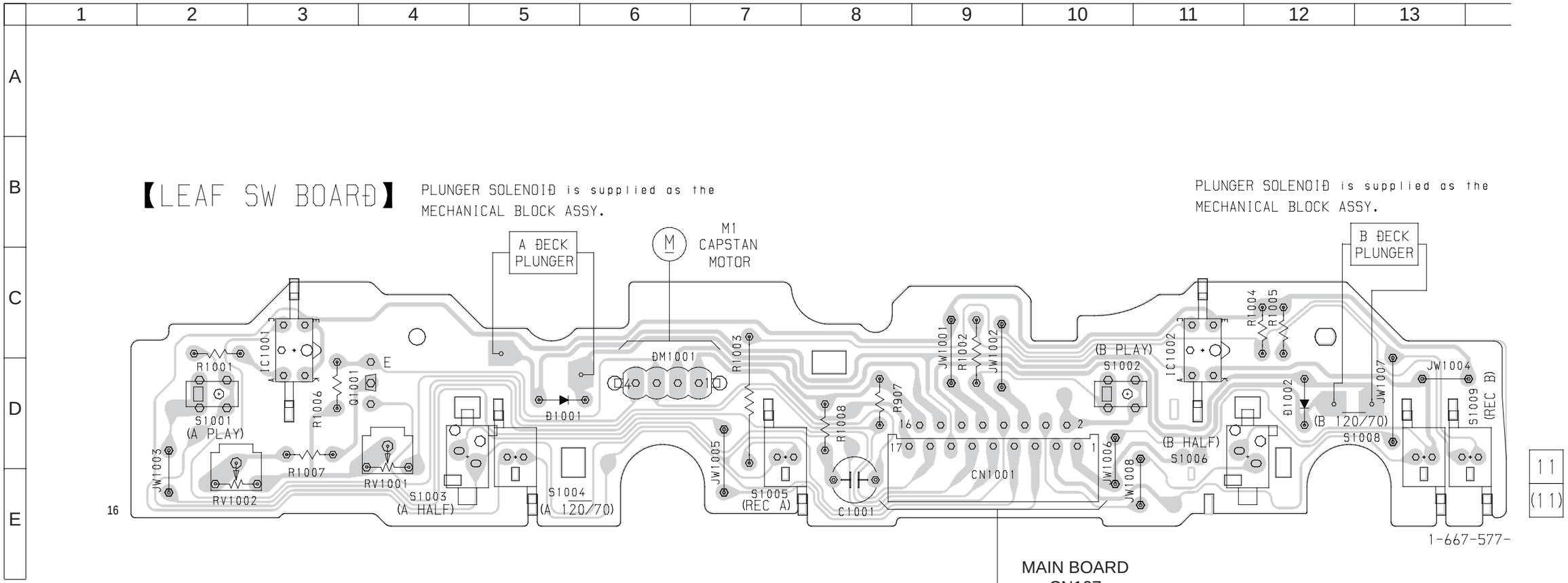


6-10. SCHEMATIC DIAGRAM — AUDIO SECTION —



6-11. PRINTED WIRING BOARD — LEAF SW SECTION —

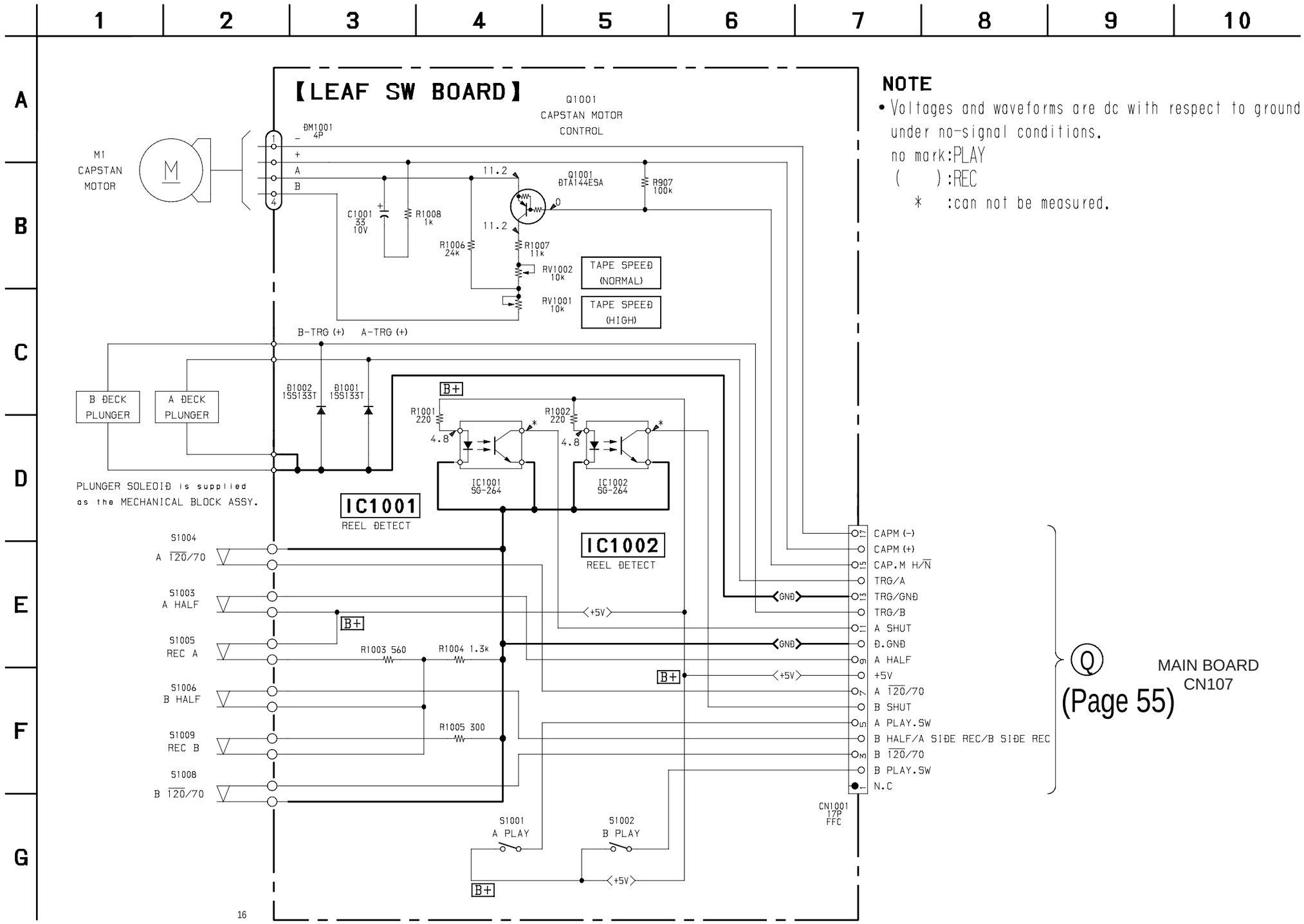
• See page 33 for Circuit Boards Location.



• **Semiconductor Location**

Ref. No.	Location
D1001	D-5
D1002	
IC1001	C-3
IC1002	C-11
Q1001	D-4

6-12. SCHEMATIC DIAGRAM — LEAF SW SECTION —



NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:PLAY
  ( ):REC
  * :can not be measured.

6-13. PRINTED WIRING BOARD — MAIN SECTION —

• See page 33 for Circuit Boards Location.

• **Semiconductor Location**

Ref. No.	Location
D141	C-10
D333	D-1
D401	I-10
D402	I-10
D411	I-10
D501	D-7
D502	D-7
D503	D-7
D504	D-7
D505	D-6
D506	D-6
D701	E-13
D702	F-11
D703	E-10
D704	E-11
D705	E-13
D712	G-11
D731	H-10
D732	H-2
D733	H-5
D751	E-11
D901	H-4
D902	H-4
D903	H-5
D904	H-5
D905	F-6
D906	F-7
D907	I-6
D908	I-6
D909	H-4
D910	H-3
D911	H-2
D912	H-2
D913	G-4
D914	F-3
D917	F-3
IC101	B-11
IC191	D-13
IC301	C-4
IC401	I-11
IC402	E-13
IC411	I-12
IC441	G-8
IC461	J-13
IC501	B-6
IC502	D-6
IC701	H-10
IC901	H-7
IC902	G-4
IC903	F-2
IC904	E-8
Q111	C10
Q112	B-10
Q113	C-9
Q191	C-13
Q161	B-10
Q162	B-10
Q163	C-9
Q331	E-2
Q332	E-1
Q333	F-2
Q334	F-1
Q335	E-3
Q336	E-2
Q337	E-2
Q338	E-1
Q339	E-1
Q340	D-2
Q341	D-2
Q342	D-1
Q343	D-1
Q411	J-13
Q501	D-7
Q505	C-5
Q571	D-5
Q572	D-5
Q575	D-8
Q701	F-10
Q702	F-10
Q703	E-13
Q704	E-13
Q711	G-9
Q712	F-9
Q713	F-9
Q731	H-10
Q732	G-10
Q733	H-9
Q901	E-6
Q902	F-6
Q903	F-7
Q905	F-4
Q906	F-3
Q907	F-4
Q908	F-4
Q910	H-2
Q911	F-7
Q912	F-7
Q913	G-4
Q914	G-4
Q915	E-6
Q916	E-5
Q951	E-5
Q952	F-5

【MAIN BOARD】

※1:FR10:AEP,UK,G,AUS MODEL
※2:F150/FR10:SP,MY MODEL

(Page 44) TO AUDIO BOARD CN601 (P)

(Page 48) TO LEAF SW BOARD CN1001 (Q)

TO PANEL BOARD CN601 (Page 64) (A)

TO TRANS BOARD CN993 (Page 68) (E)

TO AMPLIFIER BOARD NO801 (Page 68) (B)

F150/FR10:AUS, SP,MY MODEL

FR10:AEP, UK,G MODEL

J101 VIDEO/MD AUDIO — R IN L — R OUT L

J191 SUPER WOOFER

TUNER UNIT

FAN (FAN101)

IC402 CD DIGITAL OUT

TO AMPLIFIER BOARD CN803 (Page 67) (C)

TM701 — R L SPEAKER — R L REAR SPEAKER — R L

TM702 CENTER SPEAKER

TO CD MOTOR BOARD CN61 (Page 40) (L)

【HP/MIC BOARD】

J781 PHONES — J782 MIC

【CD DOOR BOARD】

TO BD BOARD CN102 (Page 36) (N)

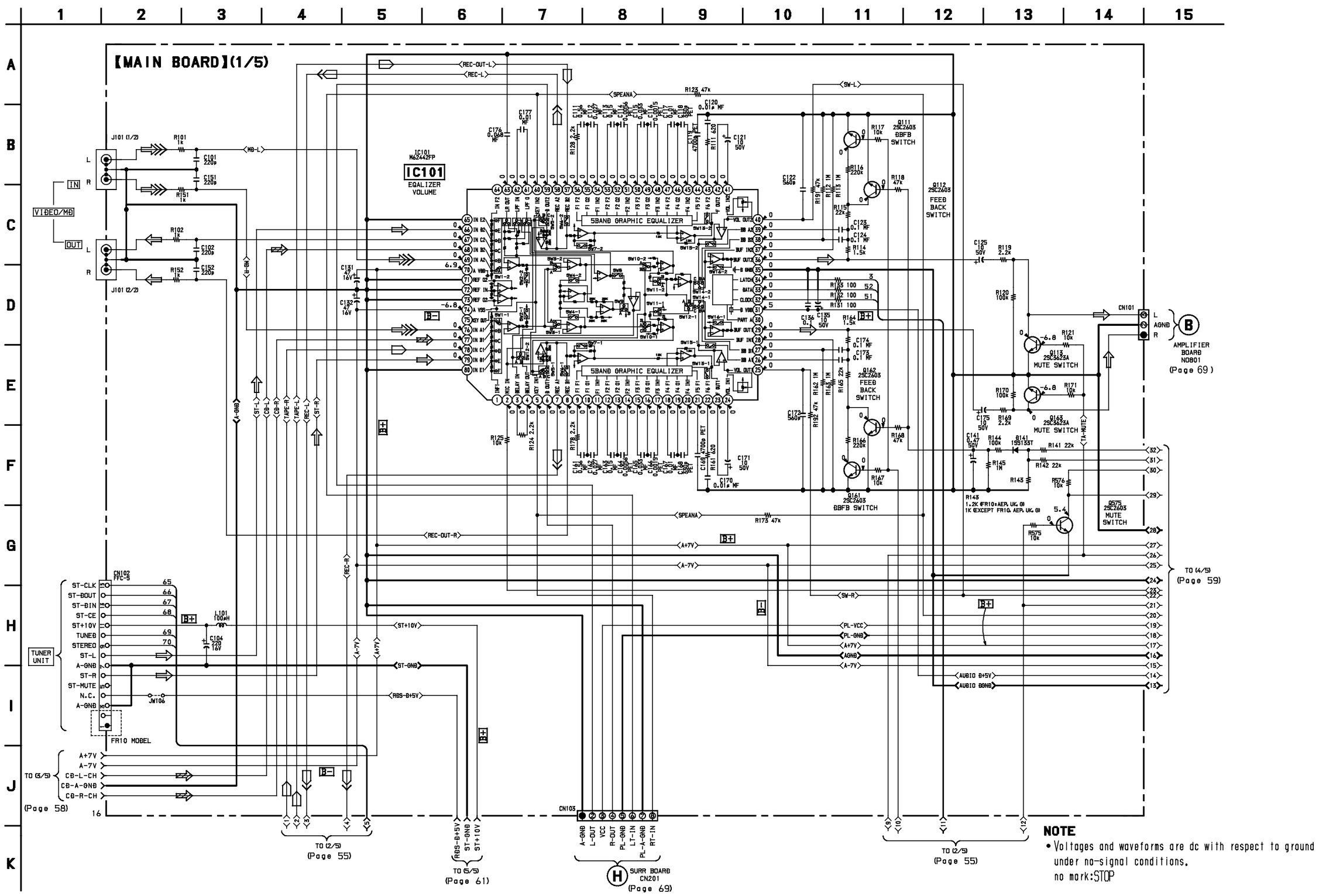
TO DISC SENSOR(S) BOARD CN53 (Page 39) (I)

TO BD BOARD CN103 (Page 36) (M)

TO TABLE SENSOR BOARD CN51 (Page 39) (J)

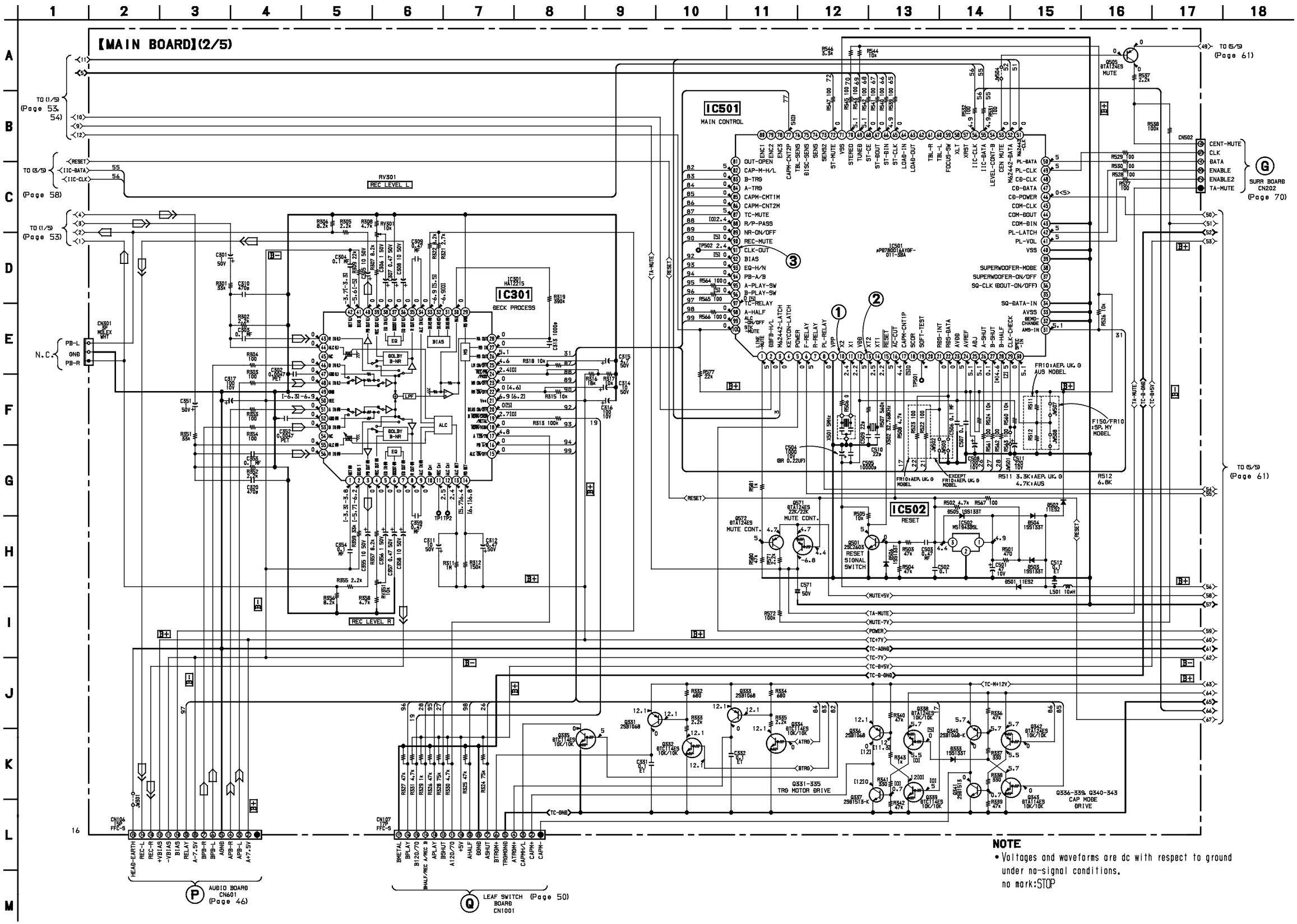
TO DOOR SW BOARD CN54 (Page 40) (K)

6-14. SCHEMATIC DIARGAM — MAIN (1/5) SECTION —



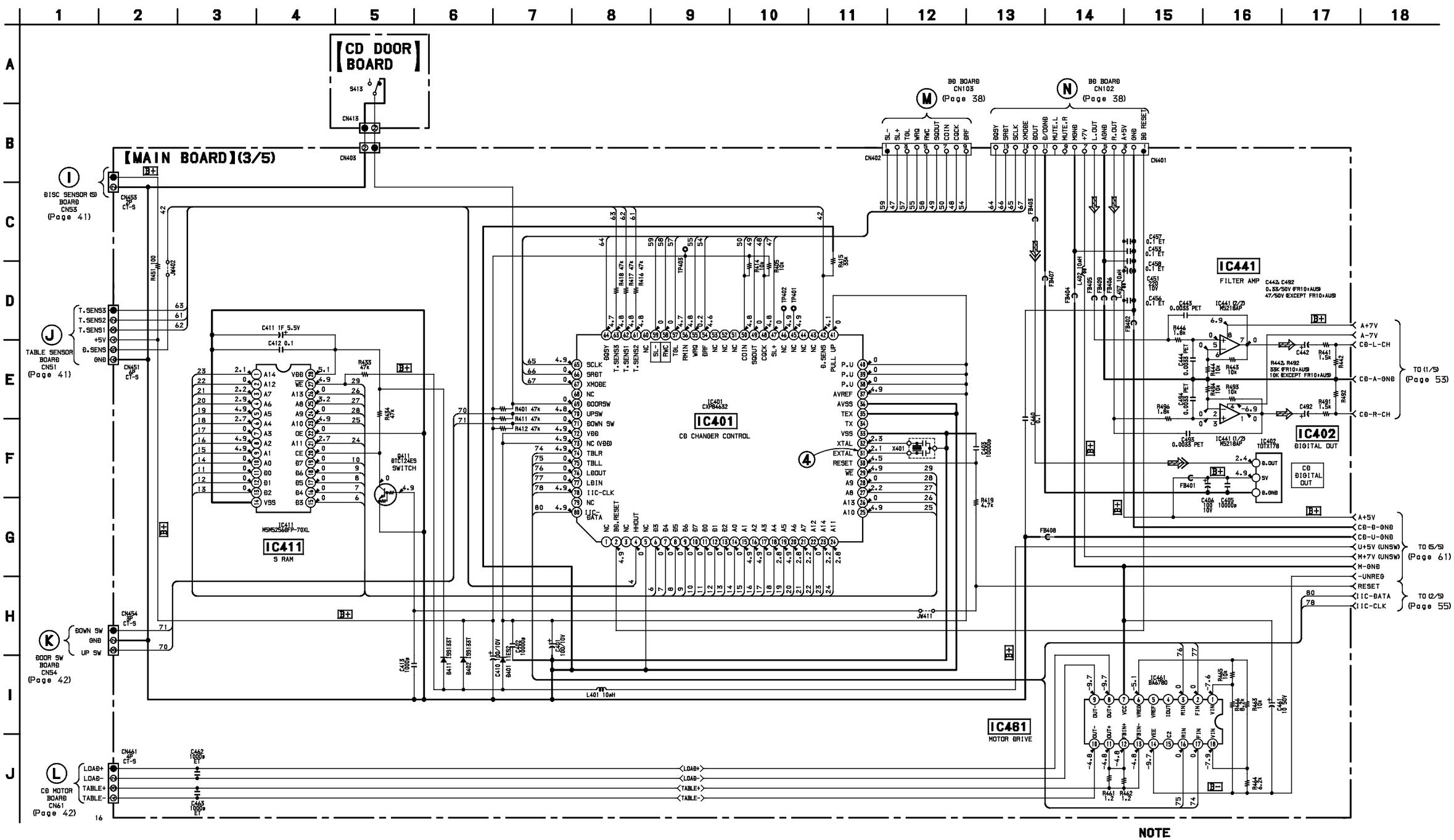
6-15. SCHEMATIC DIARGAM — MAIN (2/5) SECTION —

• See page 51 for Printed Wiring Board. • See page 71 for Waveforms. • See page 77 for IC Pin Functions.



6-16. SCHEMATIC DIARGAM — MAIN (3/5) SECTION —

• See page 51 for Printed Wiring Board. • See page 71 for Waveforms. • See page 76 for IC Pin Functions.

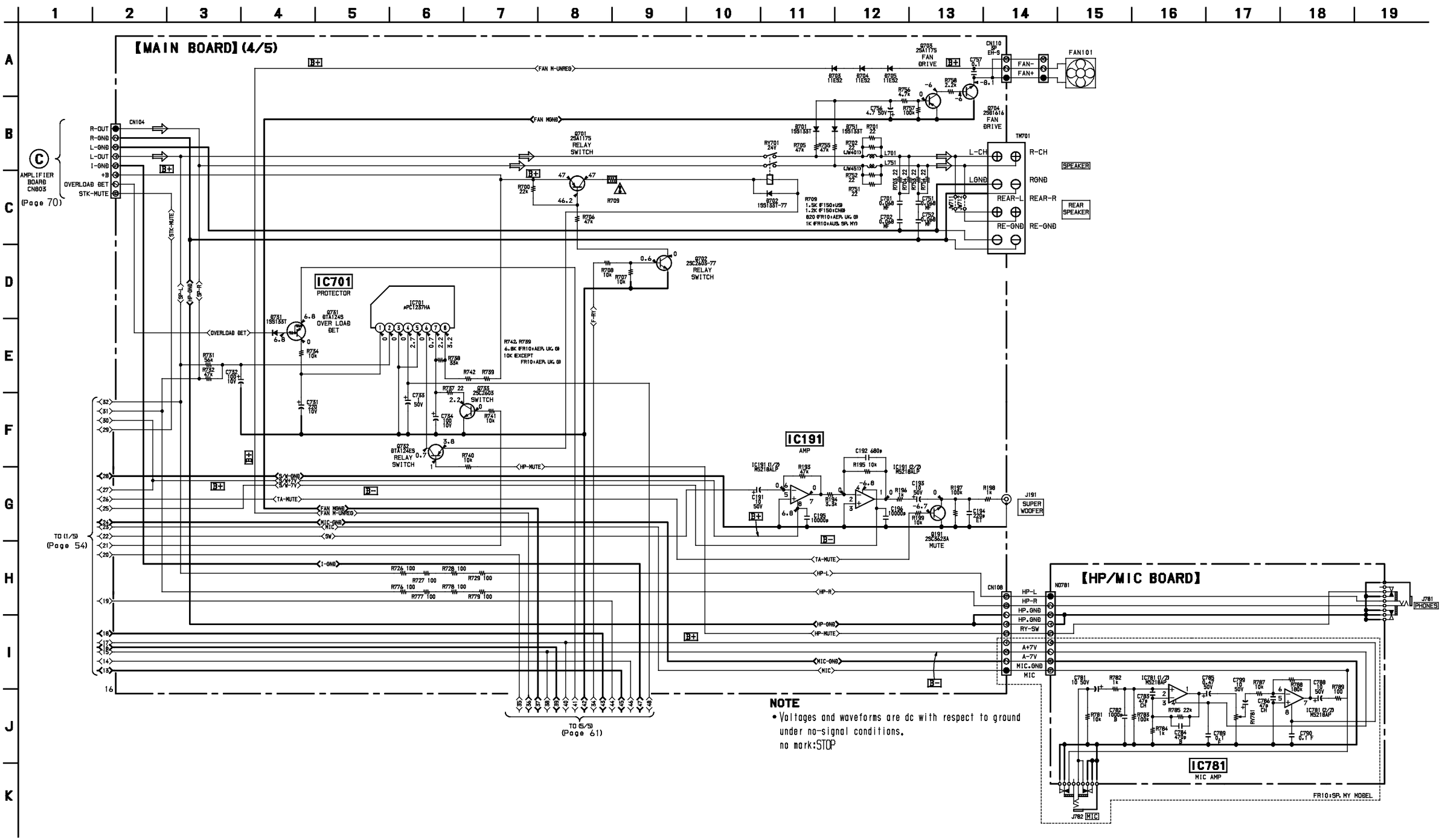


NOTE

- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP

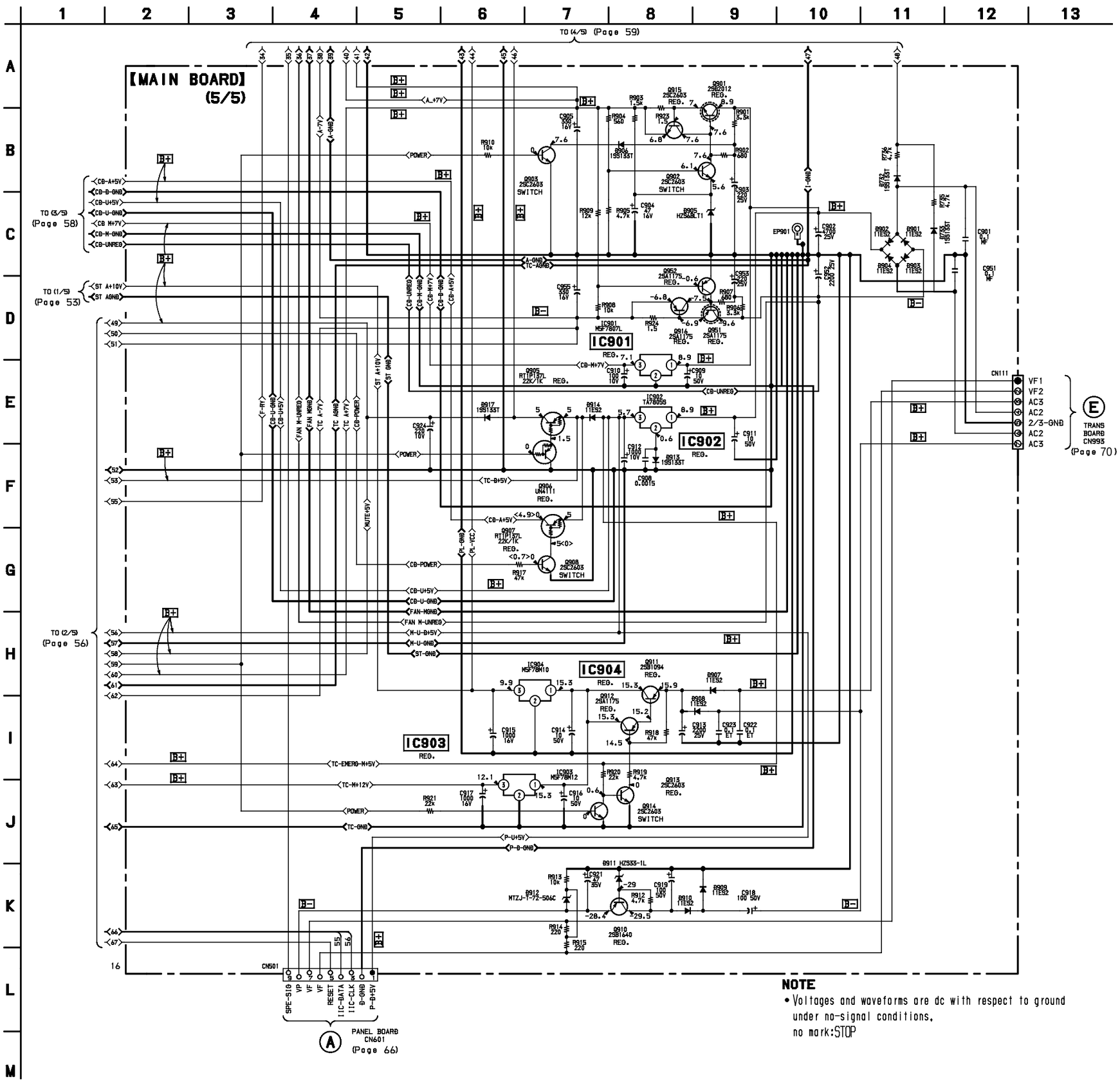
6-17. SCHEMATIC DIARGAM — MAIN (4/5) SECTION —

• See page 51 for Printed Wiring Board. • See page 80 for IC Black Diagrams.



6-18. SCHEMATIC DIARGAM — MAIN (5/5) SECTION —

• See page 51 for Printed Wiring Board.



NOTE

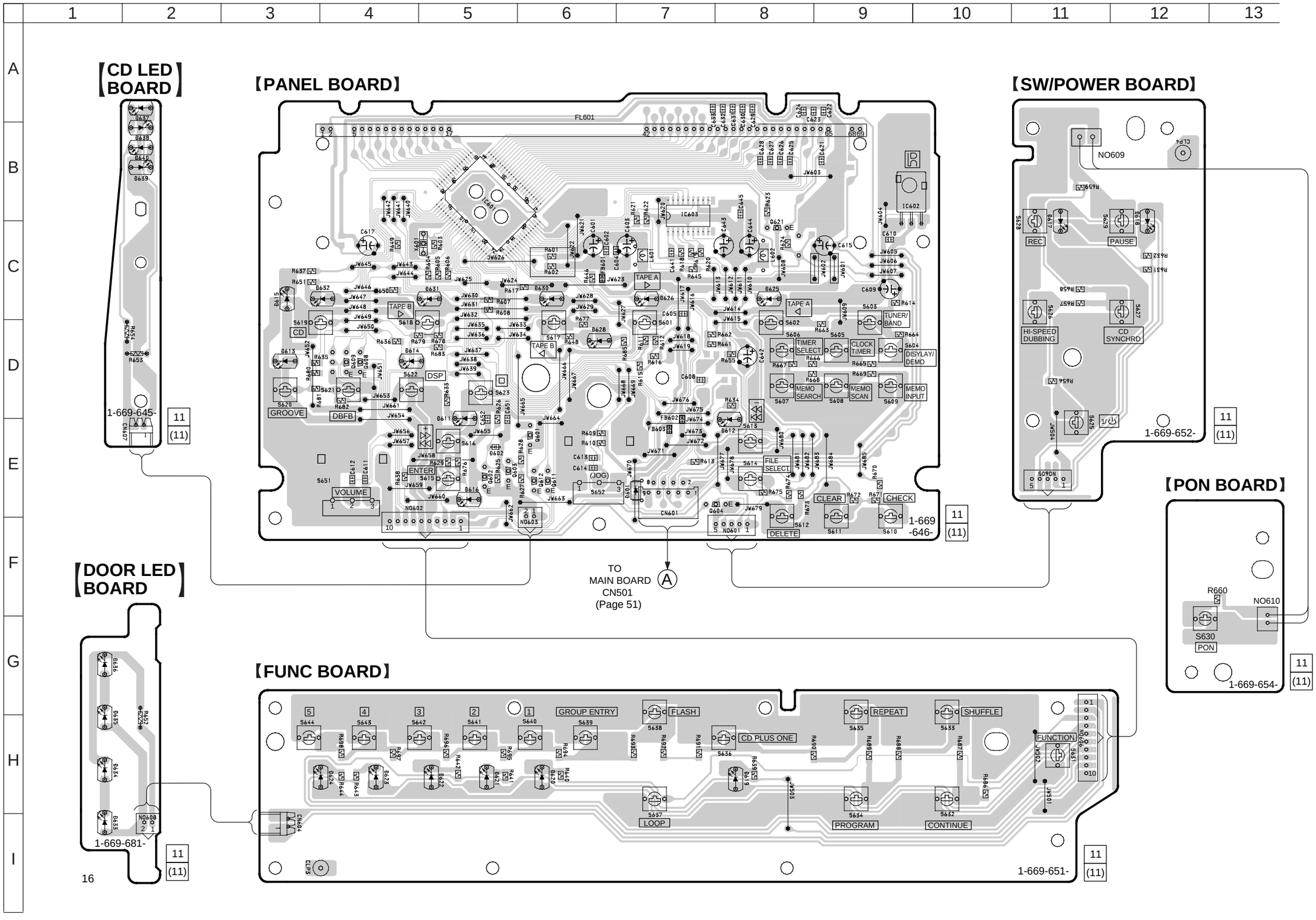
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP

6-19. PRINTED WIRING BOARD — PANEL SECTION —

• See page 33 for Circuit Boards Location.

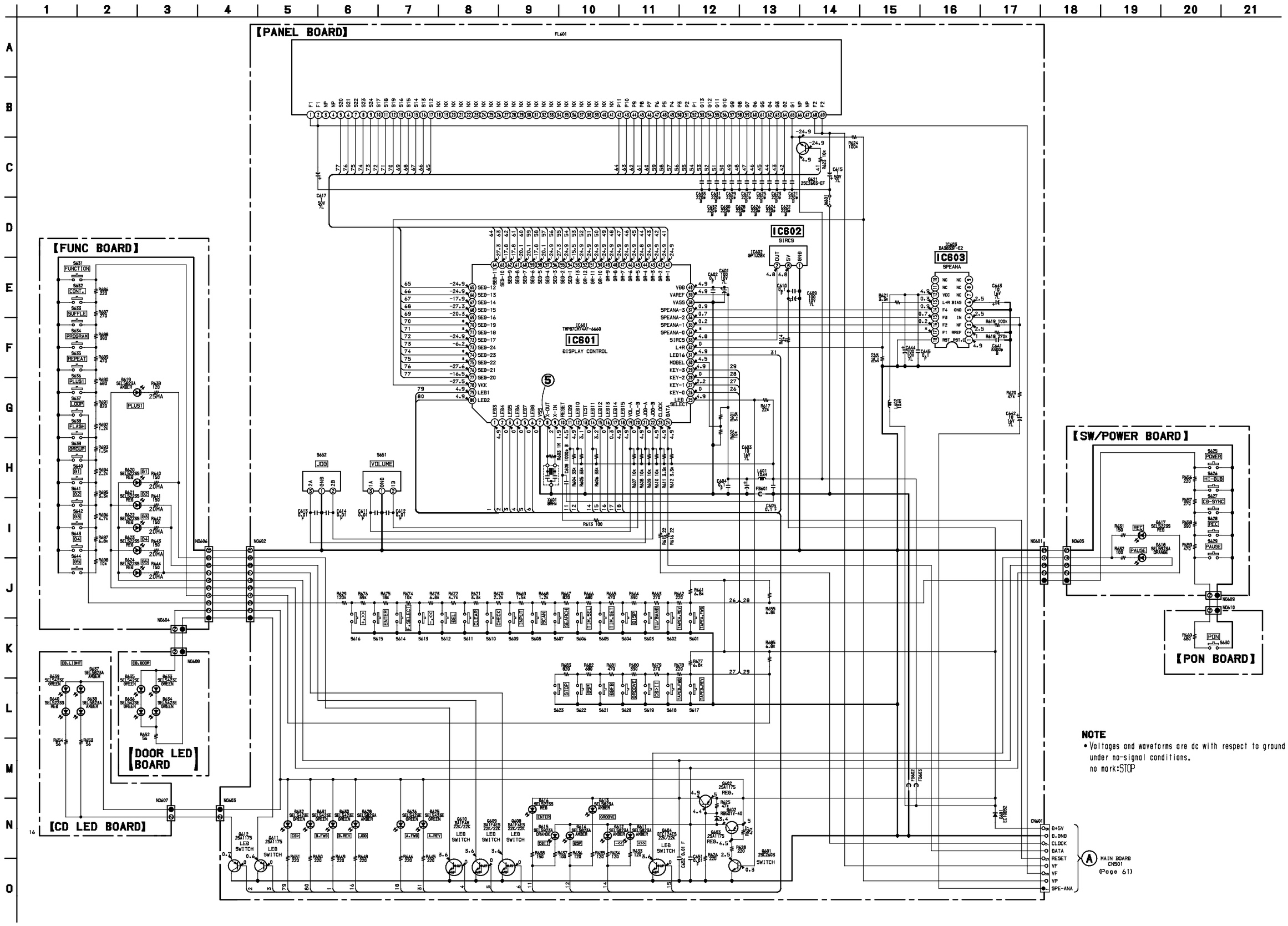
• **Semiconductor Location**

Ref. No.	Location
D601	E-7
D602	E-5
D611	E-5
D612	E-8
D613	D-3
D614	D-4
D615	C-3
D616	E-5
D617	C-11
D618	B-12
D619	H-8
D620	H-6
D621	H-5
D622	H-5
D623	H-4
D624	H-3
D625	C-8
D626	C-7
D627	D-7
D628	C-6
D630	C-6
D631	C-5
D632	C-4
D633	I-1
D634	H-1
D635	H-1
D636	G-1
D637	A-2
D638	B-2
D639	B-2
D640	B-2
IC601	B-5
IC602	B-10
IC603	B-7
Q601	E-6
Q602	E-5
Q603	E-6
Q604	E-8
Q608	D-4
Q609	D-4
Q610	D-4
Q611	E-6
Q612	E-6
Q621	B-8



6-20. SCHEMATIC DIAGRAM — PANEL SECTION —

• See page 80 for IC Black Diagrams.



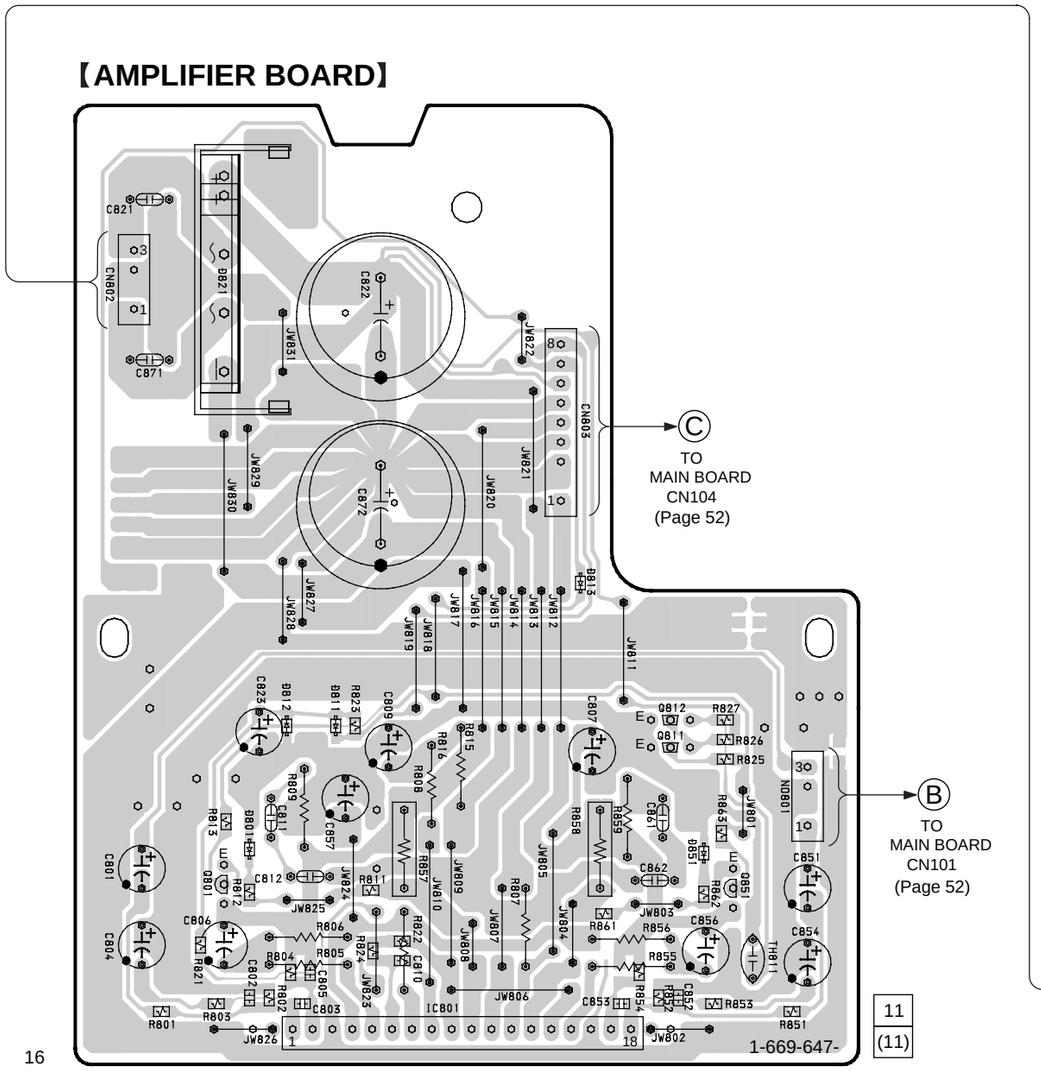
6-21. PRINTED WIRING BOARD — POWER SECTION —

• See page 33 for Circuit Boards Location.

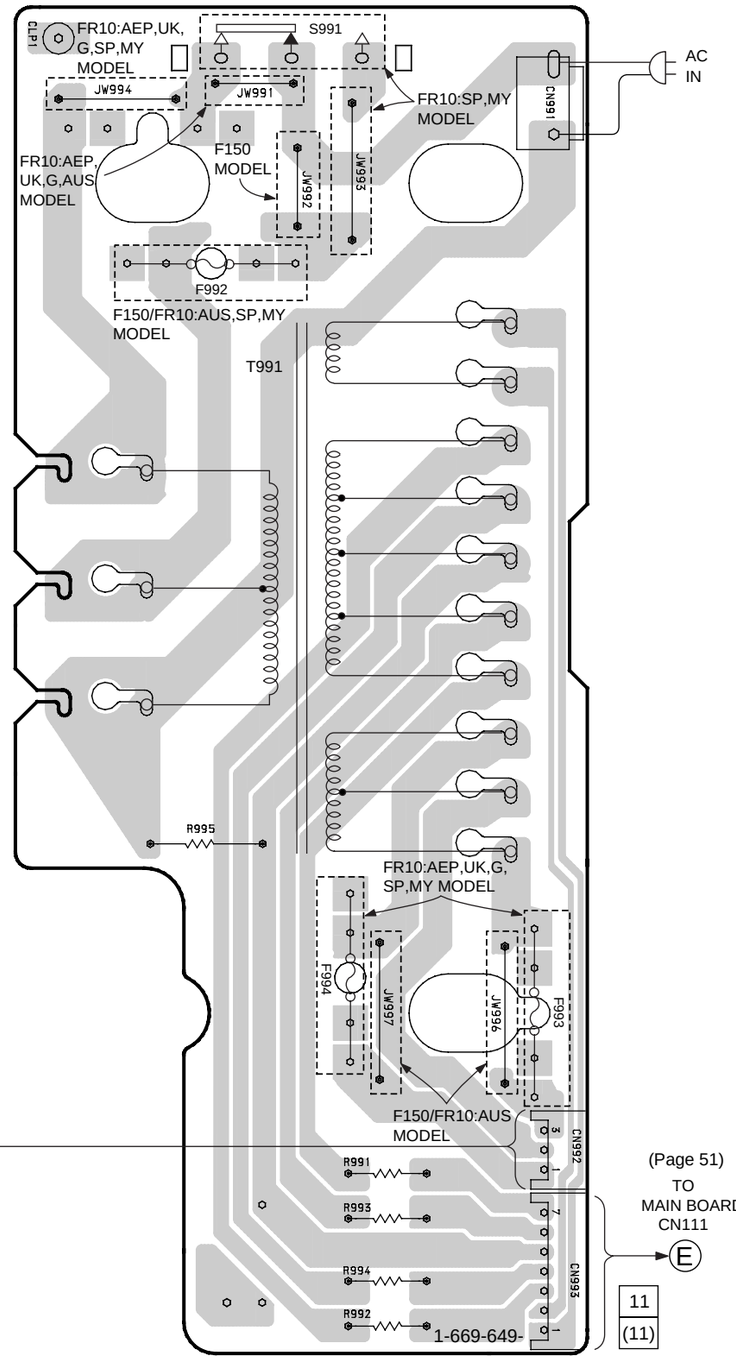
• **Semiconductor Location**

Ref. No.	Location
D801	G-3
D811	F-3
D812	F-3
D813	F-5
D821	D-2
D851	G-6
IC801	H-4
Q801	H-2
Q811	G-5
Q812	F-5
Q851	G-6

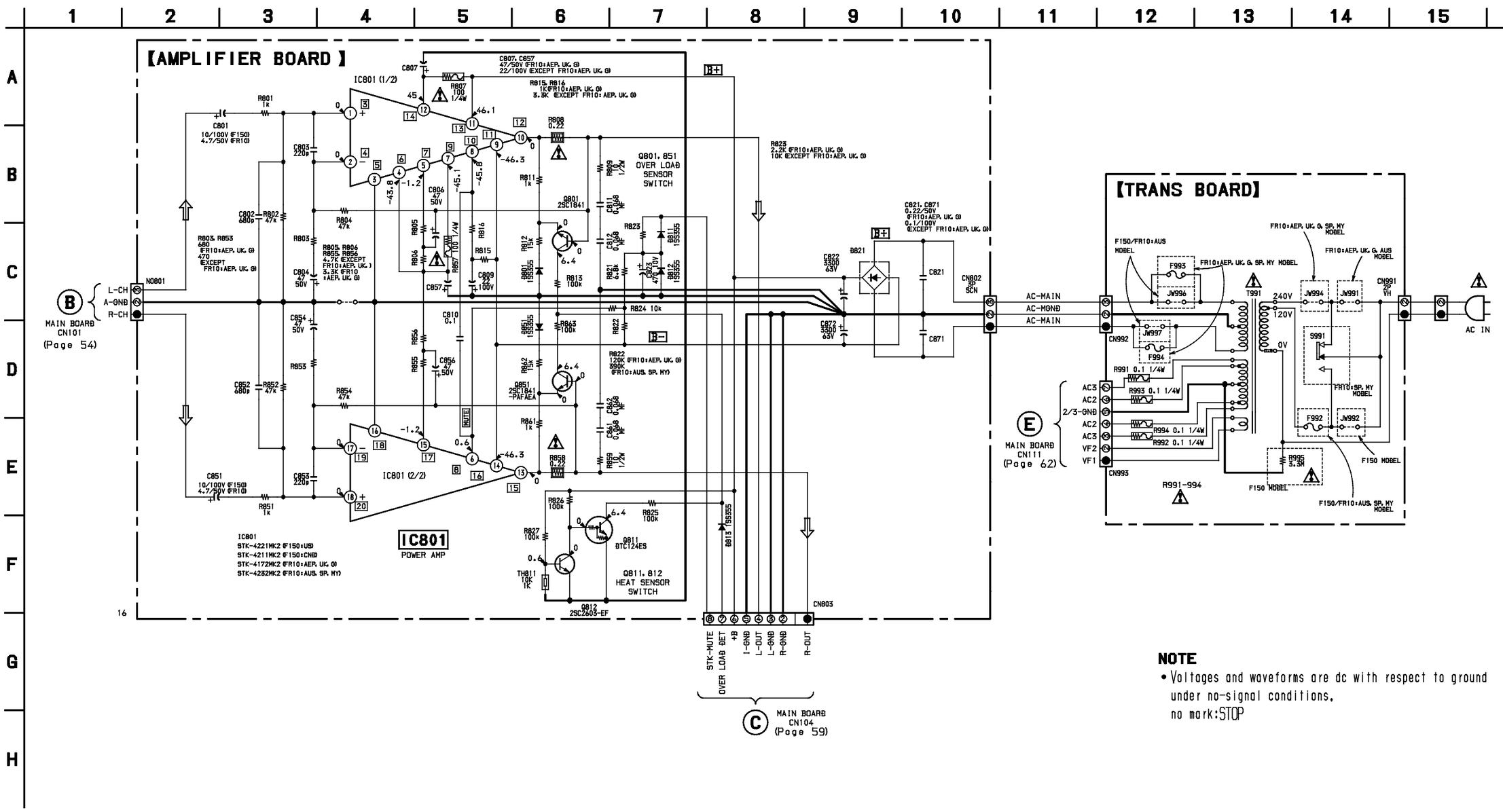
【AMPLIFIER BOARD】



【TRANS BOARD】



6-22. SCHEMATIC DIAGRAM — POWER SECTION —

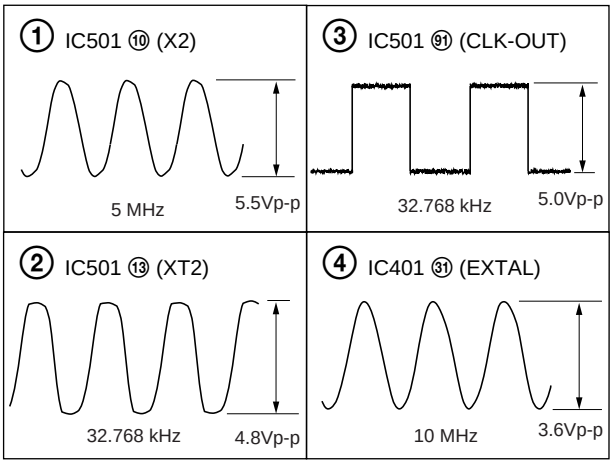


NOTE

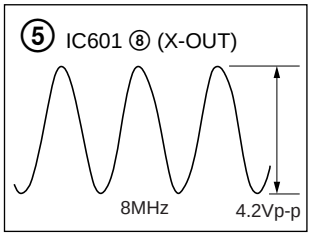
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
  no mark:STOP

6-23. WAVEFORMS

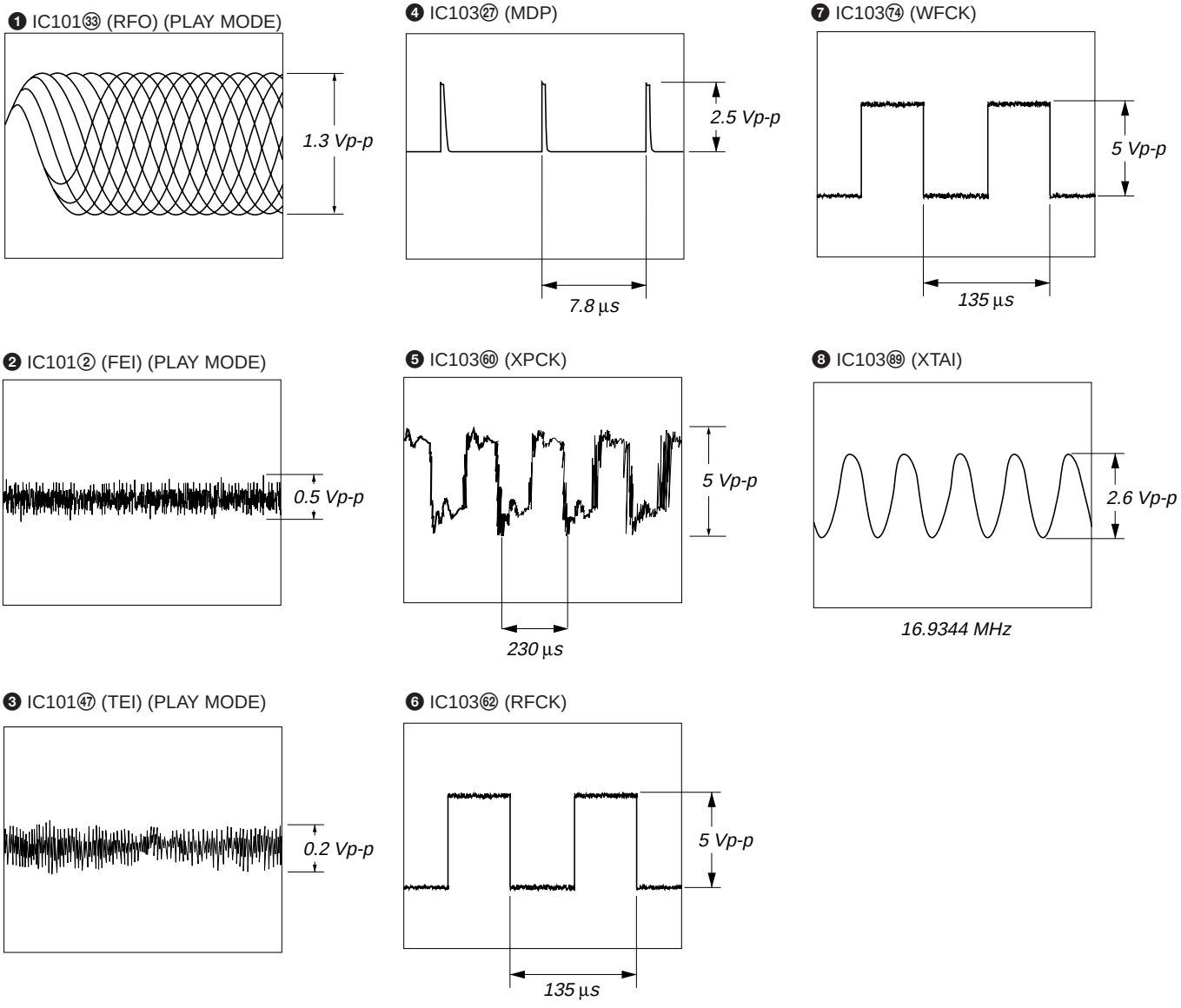
– MAIN Section –



– PANEL Section –



– BD Section –



6-24. IC PIN FUNCTION DESCRIPTION

BD BOARD IC101 LA9240M

Pin No.	Pin Name	I/O	Function
1	FIN2	I	Connected to the pick-up photodiode Added with FIN1 to create RF signal, subtracted with FIN1 to create FE signal
2	FIN1	I	Connected to the pick-up photodiode
3	E	I	Connected to the pick-up photodiode Subtracted with F to create TE signal
4	F	I	Connected to the pick-up photodiode
5	TB	I	DC component of the TE signal is input
6	TE–	I	Connects the TE signal gain setting resistor between TE pins
7	TE	O	TE signal output
8	TESI	I	TES (Track Error Sense) comparator input. The TE signal is band-passed and input
9	SCI	I	Shock detection input
10	TH	I	Tracking gain time constant setting
11	TA	O	TA amplifier output
12	TD–	I	Creates a tracking phase compensation constant between TD and VR pins
13	TD	O	Tracking phase compensation setting
14	JP	I	Tracking jump signal (kick pulse) amplitude setting
15	TO	O	Tracking control signal output
16	FD	O	Focusing control signal output
17	FD–	I	Creates a focusing phase compensation constant between FD and FA pins
18	FA	O	Creates a focusing phase compensation constant between FD- and FA- pins
19	FA–	I	Creates a focusing phase compensation constant between FA and FE pins
20	FE	O	FE signal output
21	FE–	I	Connects the FE signal gain setting resistor between TE pins
22	AGND	—	Analog signal Ground
23	SP	O	Single end output of CV+ and CV- pin signal
24	SPI	I	Spindle amplifier input
25	SPG	I	Gain setting resistor is connected when the spindle 12cm mode
26	SP–	I	Works together with the SPD pin to connect to the spindle phase compensation constant
27	SPD	O	Spindle control signal output
28	SLEQ	I	Sled phase compensation constant is connected
29	SLD	O	Sled control signal output
30	SL–	I	Sled feeding signal is input from the microprocessor
31	SL+	I	Sled feeding signal is input from the microprocessor
32	JP–	I	Tracking jump signal is input from the DSP
33	JP+	I	Tracking jump signal is input from the DSP
34	TGL	I	Tracking gain control signal is input from the DSP Gain becomes low when TGL is “H”
35	TOFF	I	Tracking off control signal is input from the DSP Tracking becomes off when TOFF is “H”
36	TES	O	Outputs TES signal to the DSP
37	HFL	O	HFL (High Frequency Level) is used to determine whether the main beam is positioned on a pit or a mirror

Pin No.	Pin Name	I/O	Function
38	SLOF	I	Sled servo off control input
39	CV–	I	CLV error signal is input from the digital signal processor
40	CV+	I	CLV error signal is input from the digital signal processor
41	RFSM	O	RF output
42	RFS–	I	Works together with the RFSM pin to set the RF gain and the 3T compensation constant for the EFM signal
43	SLC	O	SLI (Slice Level Control) is output to control a data slice level of the RF waveform by the digital signal processor
44	SLI	I	Input pin for controlling a data slice level by the digital signal processor
45	DGND	—	Digital Ground
46	FSC	O	Focus search smoothing capacitor output
47	TBC	I	TBC (Tracking Balance Control) sets a EF balance variable range
48	NC	—	Not used
49	DEF	O	Defect detection output for a disc
50	CLK	I	Reference clock input The 4.23 MHz of the digital signal processor is input
51	CL	I	Microprocessor command clock input
52	DAT	I	Microprocessor command data input
53	CE	I	Microprocessor command chip enable input
54	DRF	O	DRF (Defect RF) outputs a RF level detection
55	FSS	I	FSS (Focus Search Select) is a switching pin for the focus search mode (±search/+search for a reference voltage)
56	VCC2	—	Servo system and digital system VCC
57	RFFI	I	Reference voltage bus control is connected
58	VR	O	Reference voltage output
59	LF2	I	Constant setting for a disc defect detection
60	PH1	I	Connected to the capacitor for the RF signal peak hold
61	BH1	I	Connected to the capacitor for the RF signal bottom hold
62	LDD	O	APC circuit output
63	LDS	I	APC circuit input
64	VCC1	—	RF system VCC

• Abbreviation
EFM : Eight to Fourteen Modulation
APC : Auto Power Control

BD BOARD IC102 LC78622E

Pin No.	Pin Name	I/O	Function
1	DEFI	I	Defect detection signal (DEF) input (Be sure to connect to 0 when not in use)
2	TAI	I	PLL test input to incorporates a pull-down resistor (Be sure to connect to 0V)
3	PDO	O	PLL phase comparison output for external VCO control
4	VVSS	—	PLL ground for the built-in VCO (Be sure to connect to 0 when not in use)
5	ISET	I	Connected to a current adjusting resistor for the PDO output
6	VVDD	—	Built-in VCO power supply
7	FR	I	Adjusts the VCO frequency range
8	VSS	—	Digital Ground to be sure to connect to 0
9	EFMO	O	Slice level control to EFM signal output
10	EFMIN	I	Slice level control to EFM signal input
11	TEST2	I	Test input to incorporates a pull-down resistor (Be sure to connect to 0V)
12	CLV+	O	Disc motor control output (3-value output available depending on the command)
13	CLV–	O	
14	V/P	O	Rough servo/phase control automatic switching monitor output “H”:rough servo, ‘’L”:phase servo
15	HFL	I	Tracking detection signal input (Schmidt input)
16	TES	I	Tracking error signal input (Schmidt input)
17	TOFF	O	Tracking OFF output
18	TGL	O	Tracking gain switching output (Raises gain when “L”)
19	JP+	O	Track jump control output (3-value output available depending on the command)
20	JP–	O	
21	PCK	O	EFM data playback clock monitor (4.3218 MHz when phase is locked)
22	FSEQ	O	Sync signal detection output (“H” when a sync signal detected from the EFM signal and that generated internally coincide)
23	VDD	—	Digital power supply
24	CONT1	I/O	General purpose output 1. Performs control using a serial data command from the microprocessor (When not in use, connect to 0V by setting to an input or set to an open state by setting to an output)
25	CONT2	I/O	General purpose output 2. Performs control using a serial data command from the microprocessor (When not in use, connect to 0V by setting to an input or set to an open state by setting to an output)
26	CONT3	I/O	General purpose output 3. Performs control using a serial data command from the microprocessor (When not in use, connect to 0V by setting to an input or set to an open state by setting to an output)
27	CONT4	I/O	General purpose output 4. Performs control using a serial data command from the microprocessor (When not in use, connect to 0V by setting to an input or set to an open state by setting to an output)
28	CONT5	I/O	General purpose output 5. Performs control using a serial data command from the microprocessor (When not in use, connect to 0V by setting to an input or set to an open state by setting to an output)

• Abbreviation
PLL : Phase Locked Loop
EFM : Eight to Fourteen Modulation

Pin No.	Pin Name	I/O	Function
29	EMPH	O	Deemphasis monitor The deemphasis disc is being played back when “H”
30	C2F	O	C2 flag output
31	DOUT	O	Digital OUT output (EIAJ format)
32	TEST3	I	Test input Incorporates a pull-down resistor Be sure to connect to 0V
33	TEST4	I	Test input Incorporates a pull-down resistor Be sure to connect to 0V
34	NC	—	Not used Be sure to use it in an open state
35	MUTEL	O	L channel 1-bit DAC L channel mute output
36	LVDD	—	L channel 1-bit DAC L channel power supply
37	LCHO	O	L channel 1-bit DAC L channel output
38	LVSS	—	L channel 1-bit DAC L channel ground Be sure to connect to 0V
39	RVSS	—	R channel 1-bit DAC R channel ground Be sure to connect to 0V
40	RCHO	O	R channel 1-bit DAC R channel output
41	RVDD	—	R channel 1-bit DAC R channel power supply
42	MUTER	O	R channel 1-bit DAC R channel mute output
43	XVDD	—	Power supply for the crystal oscillator
44	XOUT	O	Connected to the 16.9344 MHz crystal oscillator
45	XIN	I	
46	XVSS	—	Ground for the crystal oscillator Be sure to connect to 0V
47	SBSY	O	Sync signal output for the subcode block
48	EFLG	O	C1, C2, single correction, and double correction monitor
49	PW	O	Subcode P, Q, R, S, T, U, W output
50	SFSY	O	Subcode frame sync signal output
			Rises when the subcode is in a standby
51	SBCK	I	Subcode read clock input Schmidt input (Connect to 0V when not in use)
52	FSX	O	7.35 kHz sync signal output divided from the crystal oscillation
53	WRQ	O	Subcode Q output standby output
54	RWC	I	Read/write control input Schmidt input
55	SQOUT	O	Subcode Q output
56	COIN	I	Command input from the microprocessor
57	CQCK	I	Command input fetching clock input or subcode extracting clock input from SQOUT Schmidt input
58	RES	I	LC78622 reset input Temporarily set to “L” when the power is turned ON
59	TEST11	O	Test output Use it in an open state (Normally, “L” output)
60	16M	O	16.9344 MHz output
61	4.2M	O	4.2336 MHz output
62	TEST5	I	Test input. Incorporates a pull-down resistor. Be sure to connect to 0V
63	CS	I	Chip select input Incorporates a pull-down resistor Be sure to connect to 0V when not in control
64	TEST1	I	Test input Does not incorporates a pull-down resistor Be sure to connect to 0V

Note) Supply the same potential to each power supply pin (VDD, VVDD, LVDD, RVDD, XVDD).

MAIN BOARD IC401 CXP84632-031Q

Pin No.	Pin Name	I/O	Function
1	—	—	Not used
2	ICSW	O	IC reset signal output
3	—	—	Not used
4	HHOUT	O	Plus one LED signal output
5	—	—	Not used
6 to 13	D0 to D7	I/O	SRAM data I/O
14 to 28	A0 to A14	O	SRAM address output
29	/WE	O	SRAM write enable output
30	RESET	I	Reset signal input
31	10MHz	O	X'tal(10MHz)
32	10MHz	I	X'tal(10MHz)
33	VSS	—	Ground
34, 35	—	—	Not used
36	AVSS	—	Analog ground
37	AVREF	I	Analog refernce voltage input
38 to 41	—	—	Not used
42	D-SENS	I	Disc detect sensor signal input
43 to 46	—	—	Not used
47	SLED-P	O	Sled motor control signal output
48	CLK	O	Clock signal output for LC78622E
49	SUBQ	I	CD sub-code input from LC78622E
50	DATA	O	Command output for LC78622E
51 to 53	—	—	Not used
54	FOK	I	DRF(FOK) signal input from LC78622E
55	WRQ	I	Sub-code synchronizing signal input from LC78622E
56	—	—	Not used
57	TGL	I	Tracking gain control signal input from LC78622E
58	RWC	O	RWC(latch) output for LC78622E
59	SLED-M	O	Sled motor control output
60	—	—	Not used
61 to 63	TSENS1 to TSENS3	I	Table sensor input
64	DQSY	I	Data synchronizing signal input from decoder
65	TCLK	O	Clock output for decoder
66	TDATA	I	Data input from decoder
67	TMODE	O	System down signal output for decoder
68	—	—	Not used
69	DOORSW	I	Front cover close detect input
70	OUTSW	I	Loading motor out detect input
71	INSW	I	Loading motor in detect input
72	VDD	—	Power supply(+5V)
73	—	—	Not used
74	TBLR	O	Table motor counter clock wise turn signal output
75	TBLL	O	Table motor clock wise turn signal output
76	LODOUT	O	Loading motor out direction signal output
77	LODIN	O	Loading motor in direction signal output
78	IICCLK	I	Serial data clock input
79	—	—	Not used
80	IICDAT	I/O	Serial data I/O

MAIN BOARD IC501 uPD780016AYGF-011-3BA

Pin No.	Pin Name	I/O	Function
1	LINE-MUTE	O	Line mute signal output
2	DBFB-H/L	O	DBFB H/L select signal output
3	442-LT	O	Latch signal output for IC101(M62442FP)
4	—	—	Not used
5	POWER	O	Power control signal output
6	F-RELAY	O	Main speaker relay control signal output
7	R-RELAY	O	Surround speaker relay control signal output(Not used)
8	PL-RELAY	O	Surround speaker relay control signal output
9	VSS	—	Ground
10	X2	O	X'tal(5MHz)
11	X1	I	X'tal(5MHz)
12	VDD	—	Power supply(+5V)
13	XT2	O	X'tal(32.768kHz)
14	XT1	I	X'tal(32.768kHz)
15	RESET	I	Reset signal input
16	AC-CUT	I	AC check input
17	CAPM-CNT1P	I	Capstan motor control 1(+) signal output
18	SCOR	O	Subcode data request signal output(Not used)
19	SOFT-TEST	O	Software test port
20	CAPM-CNT2P	I	Capstan motor control 2(+) signal output(Not used)
21	RDS-INT	I	Sirial data transfer clock input
22	RDS-DATA	I	Serial data input
23	VDD	—	Power supply(+5V)
24	AVREF	I	Analog reference voltage input
25	ADJ	I	CD adjust point port
26	A-SHUT	I	Deck-A reel pulse detector
27	B-SHUT	I	Deck-B reel pulse detector
28	B-HALF	I	Half detector signal input
29	—	—	Not used
30	SPEC-IN	I	Versin select signal input
31	AMS-IN	I	AMS signal input
32	—	—	Not used
33	AVSS	—	Analog ground
34	SQ-DATA-IN	I	Sub code Q data input(Not used)
35	—	—	Not used
36	SQ-CLK	I	Sub code Q data clock input(Not used)
37	SW-ON/OFF	O	Super woofer ON/OFF control output(Not used)
38	SW-MODE	O	Super woofer mode control output(Not used)
39	—	—	Not used
40	VSS	—	Ground
41	VOL-LAT	O	Latch signal 2 output for IC201(LV1041M)
42	PL-LAT	O	Latch signal 1 output for IC201(LV1041M)
43	COM-DIN	I	Common serial data input(Not used)
44	COM-DOUT	O	Common serial data output(Not used)
45	COM-CLK	O	Common serial clock output(Not used)
46	CD-POWER	O	CD power ON/OFF control output
47	CD-DATA	O	CD data output(Not used)
48	CD CLK	O	CD clock output(Not used)
49	PL-CLK	O	Clock signal output for IC201(LV1041M)
50	PL-DATA	O	Data signal output for IC201(LV1041M)

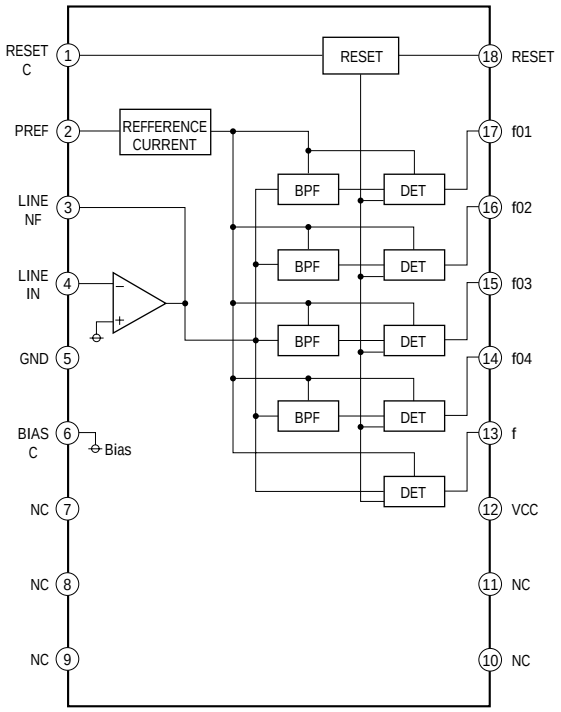
Pin No.	Pin Name	I/O	Function
51	442-CLK	O	Clock signal output for IC101(M62442FP)
52	442-DATA	O	Data signal output for IC101(M62442FP)
53	CENTER-MUTE	O	Center speaker mute signal output
54	-	-	Not used
55	IIC-DATA	O	Serial data output
56	IIC-CLK	O	Serial data clock output
57	XRST	O	CD reset signal output(Not used)
58	XLT	O	CD latch signal output(Not used)
59	FOCUS-SW	O	Focus switching signal output(Not used)
60	TBL-L	O	Table motor control signal output(Not used)
61	TBL-R	O	Table motor control signal output(Not used)
62	-	-	Not used
63	LOAD-OUT	O	Loading motor control signal output(Not used)
64	LOAD-IN	O	Loading motor control signal output(Not used)
65	ST-CLK	O	Tuner clock output
66	ST-DIN	I	Tuner data input
67	ST-DOUT	O	Tuner data output
68	ST-CE	O	Tuner chip enable output
69	TUNED	I	Tuned detection for tuner
70	STEREO	I	Stereo detection for tuner
71	VSS	-	Ground
72	ST-MUTE	O	Tuner mute signal output
73	SENS2	I	BD condition signal input(Not used)
74	SENS	I	BD condition signal input(Not used)
75	DISC-SENS	I	CD detection signal input(Not used)
76	T-SENS	I	CD table detection signal input(Not used)
77	CAPM-CNT2P	O	Capstan motor control 2(+) signal output(Not used)
78	ENC3	I	Disctray address detect encoder input(Not used)
79	ENC2	I	Disctray address detect encoder input(Not used)
80	ENC1	I	Disctray address detect encoder input(Not used)
81	OUT-OPEN	I	Out switch signal input(Not used)
82	CAP-M-H/L	O	Capstan motor High/Nomal speed select signal output(Not used)
83	B-TRG	O	B-deck trigger motor control signal output
84	A-TRG	O	A-deck trigger motor control signal output
85	CAPM-CNT1M	O	Capstan motor control 1(-) signal output
86	CAPM-CNT2M	O	Capstan motor control 2(-) signal output
87	TC-MUTE	O	TC mute control signal output
88	R/PB/PAS	I	REC/PB/PASS selection output
89	NR-ON/OFF	O	NR ON/OFF signal output
90	REC-MUTE	O	REC mute signal output
91	CLOCK-OUT	O	Clock check output
92	BIAS	O	Bias control signal output
93	EQ-H/N	O	Equalizer High/Normal control output
94	PB-A/B	O	PB deck A/B select output
95	A-PLAY-SW	I	Deck A play detect input
96	B-PLAY-SW	I	Deck B play detect input
97	TC-RELAY	O	Relay control output
98	A-HALF	I	Deck A cassette detect input
99	ALC	O	ALC control output
100	STK-MUTE	O	Power amp mute signal output

MAIN BOARD IC601 TMP87CM74AF-6660

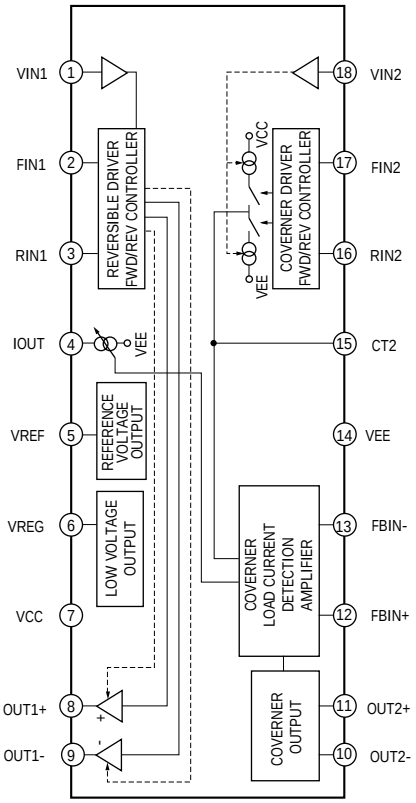
Pin No.	Pin Name	I/O	Function
1 to 6	LED3 to LED8	O	LED driver output
7	VSS	—	Ground
8	XOUT	O	X'tal(5MHz)
9	XIN	I	X'tal(5MHz)
10	RESET	I	Reset signal input
11,12	LED9,LED10	O	LED driver output
13	TEST	—	Not used
14 to 18	LED11 to LED15	O	LED driver output
19,20	VOLA,VOLB	I	Rotaly encoder pulse input for Volume
21,22	JOGA,JOGB	I	Rotaly encoder pulse input for Jog
23	SCL(IIC)	I	Serial data clock input
24	SDA(IIC)	I	Serial data input
25	LED SELECT	O	LED select signal output
26 to 29	KEY0 to KEY3	I	Key input
30	MODEL	I	Model No. input
31	LED16	O	LED driver output
32	L+R	I	Spectrum analyzer(high frequency)input
33	SIRCS	I	Remote commander signal input
34 to 37	SPEANA0 to SPEANA3	I	Spectrum analyzer signal input
38	AVSS	—	Ground
39	VAREF	—	Analog reference voltage input
40	VDD	—	Power supply(+5V)
41 to 53	GRID1 to GRID13	O	Fluorescent disply tube gride signal output
54 to 77	SEG1 to SEG24	O	Fluorescent disply tube segment signal output
78	VKK	—	—
79,80	LED1,LED2	O	LED driver output

6-25. IC BLOCK DIAGRAMS

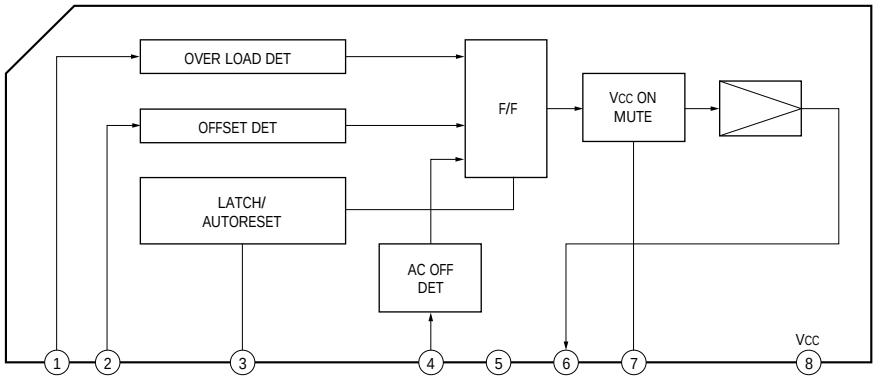
IC603 (PANEL BOARD) BA3833F-E2



IC101 (MAIN BOARD) M62442FP



IC701 (MAIN BOARD) UPC1237HA



SECTION 7
EXPLODED VIEWS

NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Abbreviation

  CND: Canadian SP: Singapore
  G: German AUS: Australian
  MY: Malaysia

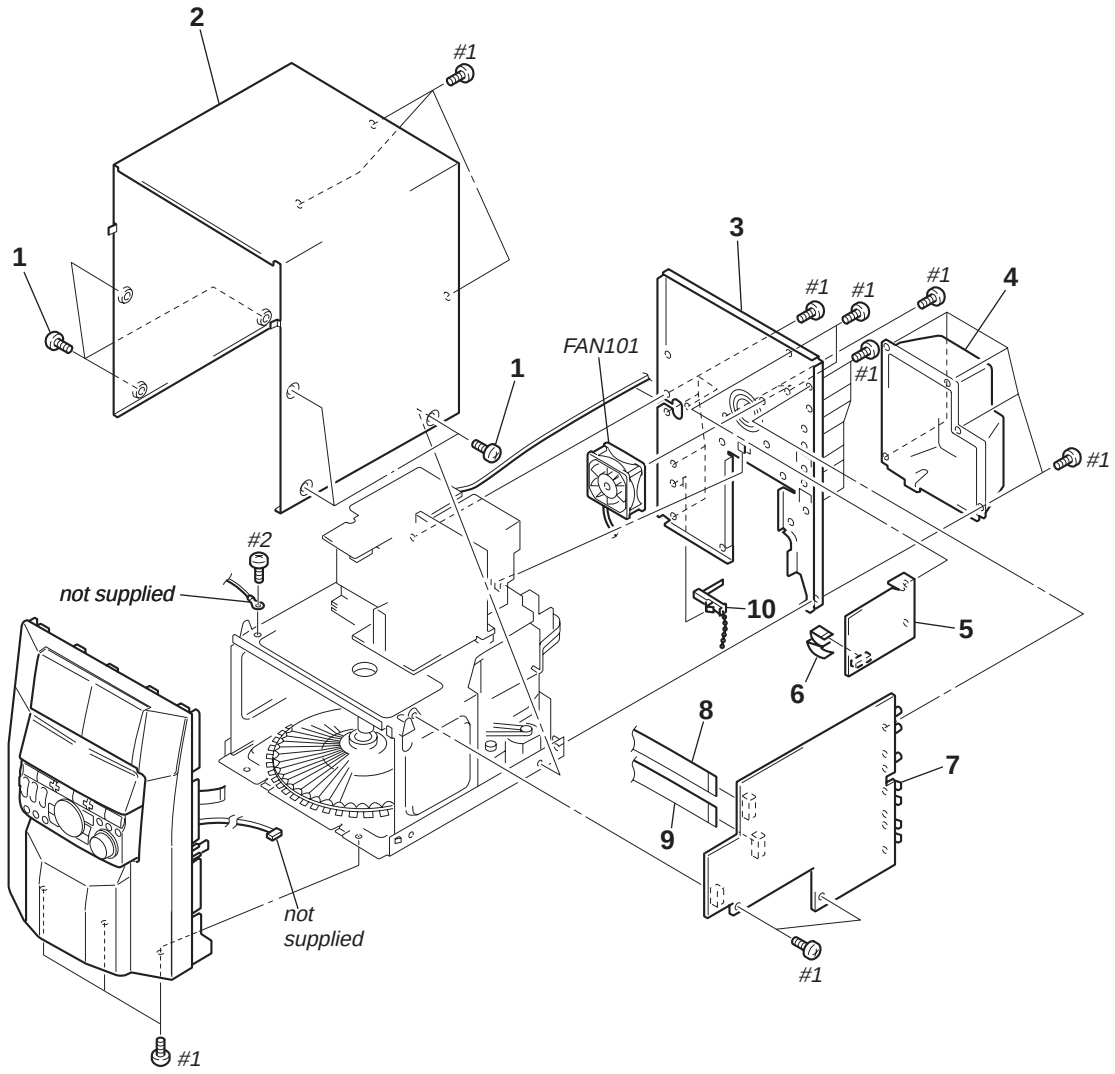
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

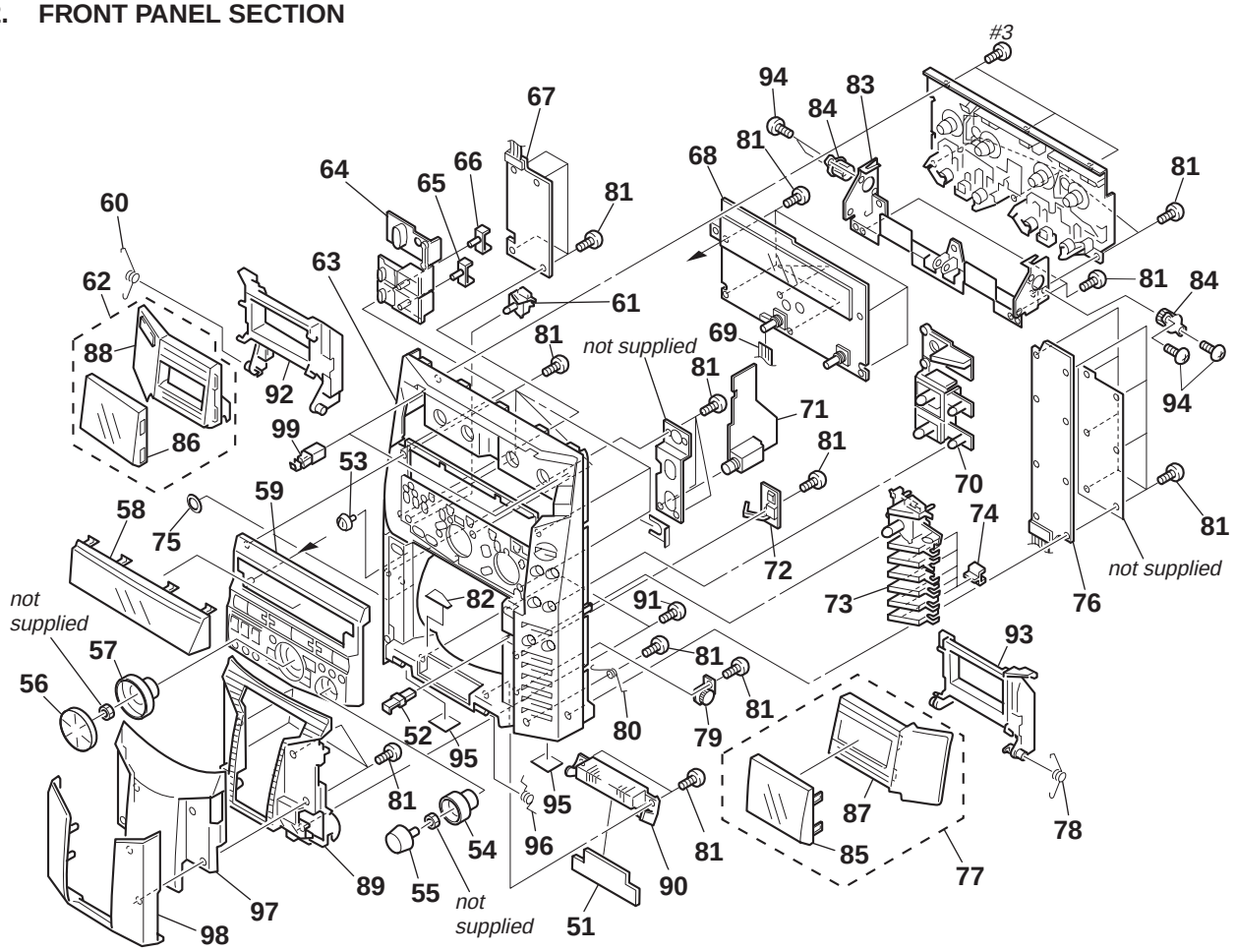
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. CASE SECTION



Ref. No.	Part No.	Description	Remarks
1	3-363-099-11	SCREW (CASE 3 TP2)	
* 2	4-999-792-01	CASE	
* 3	4-999-791-21	PANEL, BACK (FR10:AEP,UK,G)	
* 3	4-999-791-41	PANEL, BACK (FR10:AUS)	
* 3	4-999-791-51	PANEL, BACK (FR10:SP,MY)	
* 3	4-999-791-61	PANEL, BACK (F150:US)	
* 3	4-999-791-71	PANEL, BACK (F150:CND)	
* 4	4-990-365-11	COVER	
5	1-233-544-11	ENCAPSULATED COMPONENT (F150)	
5	1-233-546-11	ENCAPSULATED COMPONENT (FR10)	
6	1-773-004-11	WIRE(FLAT TYPE)(15 CORE) (FR10:AEP,UK,G,SP,MY)	
6	1-769-972-11	WIRE(FLAT TYPE)(13 CORE)(F150/FR10:AUS)	
* 7	A-4407-776-A	MAIN BOARD, COMPLETE (F150:US)	
* 7	A-4407-789-A	MAIN BOARD, COMPLETE (FR10:AEP,UK,G)	
* 7	A-4407-811-A	MAIN BOARD, COMPLETE (FR10:SP,MY)	
* 7	A-4407-830-A	MAIN BOARD, COMPLETE (FR10:AUS)	
* 7	A-4414-836-A	MAIN BOARD, COMPLETE (F150:CND)	
8	1-765-332-11	WIRE (FLAT TYPE) (15 CORE)	
9	1-773-055-11	WIRE (FLAT TYPE) (17 CORE)	
10	4-956-370-02	BAND, PLUG FIXED (FR10:UK,AUS)	
FAN101	1-698-792-11	FAN, DC	

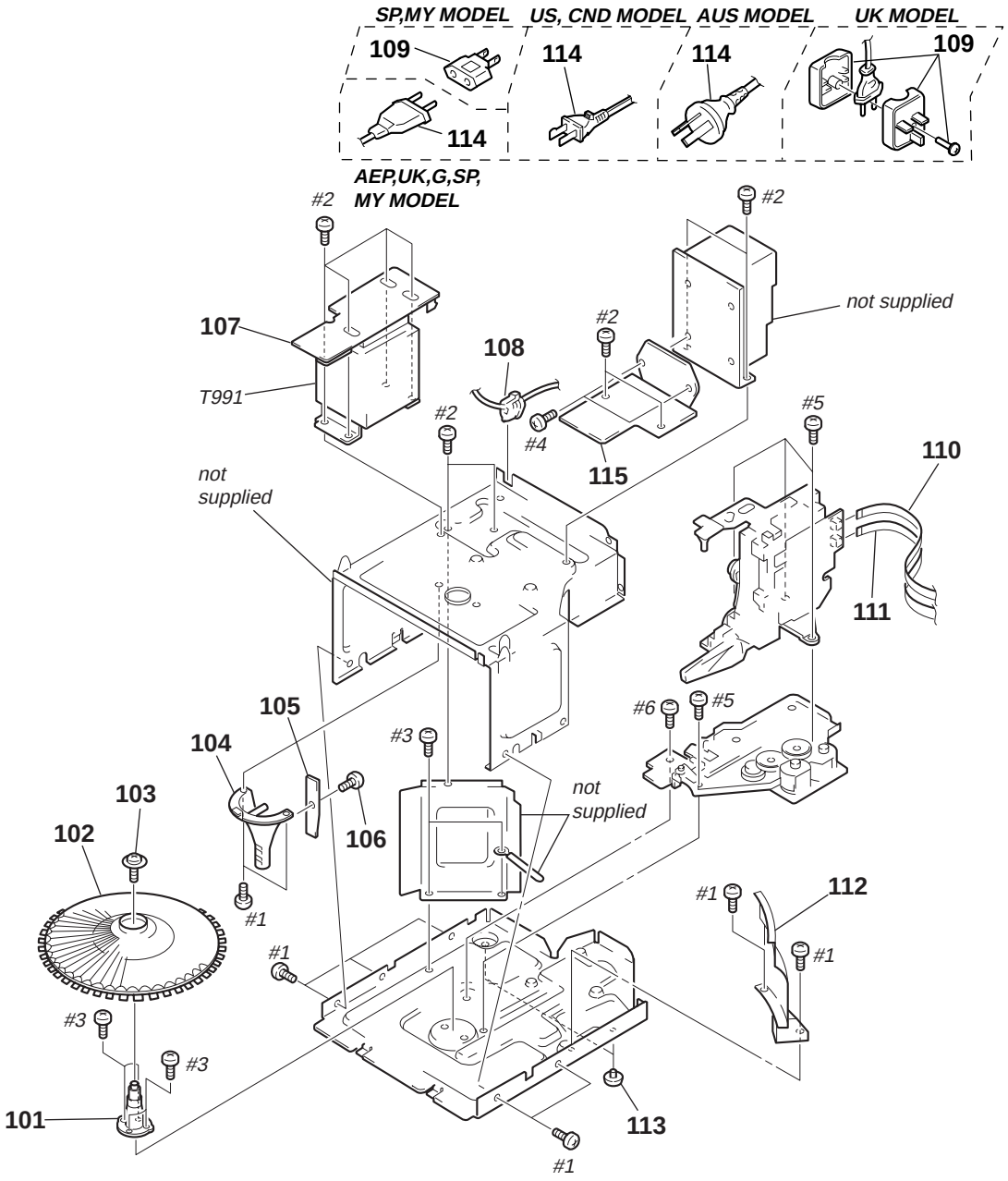
7-2. FRONT PANEL SECTION



Ref. No.	Part No.	Description	Remarks
* 51	1-669-681-11	DOOR LED BOARD	
52	4-627-936-01	LOCK, MINIATURE SIDE	
53	4-973-644-91	KNOB (MIC)(FR10:SP,MY)	
54	4-999-653-01	RING (VOL)	
55	4-999-655-01	KNOB (VOL)	
56	4-999-654-01	KNOB (JOG)	
57	4-999-652-01	RING (JOG)	
58	4-999-657-01	WINDOW	
59	X-4949-856-1	PANEL ASSY, SUB	
60	4-999-686-01	SPRING (A DECK)	
61	4-999-665-01	BUTTON (KARAOKE)(FR10:SP,MY)	
62	X-4949-858-1	HOLDER (L) ASSY, CASSETTE	
63	4-999-651-21	PANEL, FRONT (FR10:AUS)	
63	4-999-651-31	PANEL, FRONT (FR10:SP,MY)	
63	4-999-651-41	PANEL, FRONT (F150:US)	
63	4-999-651-51	PANEL, FRONT (F150:CND)	
63	4-999-651-61	PANEL, FRONT (FR10:AEP,UK,G)	
64	4-999-648-01	BUTTON (POWER)	
65	4-999-650-01	INDICATOR (PAUSE)	
66	4-999-649-01	INDICATOR (REC)	
* 67	1-669-652-11	SW/POWER BOARD	
* 68	A-4407-778-A	PANEL BOARD, COMPLETE (F150)	
* 68	A-4407-791-A	PANEL BOARD, COMPLETE (FR10:AEP,UK,G)	
* 68	A-4407-824-A	PANEL BOARD, COMPLETE (FR10:SP,MY)	
* 68	A-4407-832-A	PANEL BOARD, COMPLETE (FR10:AUS)	
69	1-769-920-11	WIRE (FLAT TYPE) (9 CORE)	
70	4-999-647-01	BUTTON (FUNCTION)	
* 71	1-669-648-11	HP/MIC BOARD	

Ref. No.	Part No.	Description	Remarks
* 72	1-669-650-11	CD DOOR BOARD	
73	4-999-645-01	BUTTON (GROUP)	
74	4-999-646-01	INDICATOR (G.P)	
75	4-999-683-01	RING (MIC) (FR10:SP,MY)	
* 76	A-4407-821-A	FUNC BOARD, COMPLETE	
77	X-4949-859-1	HOLDER (R) ASSY, CASSETTE	
78	4-999-687-01	SPRING (B DECK)	
79	3-354-963-01	DAMPER	
80	4-210-807-01	SPRING (DOOR 2), TORSION	
81	4-951-620-01	SCREW (2.6X8), +BVTP	
* 82	4-991-854-01	LABEL (DISC)	
* 83	4-999-677-01	BRACKET (TC)	
84	3-973-975-21	OIL DUMPER	
85	4-999-672-01	WINDOW (TC B)	
86	4-999-671-01	WINDOW (TC A)	
87	X-4949-849-1	LID (A) ASSY, CASSETTE	
88	4-999-676-01	LID (B), CASSETTE	
89	4-999-681-01	DOOR (REAR)	
90	4-999-682-01	INDICATOR (DOOR)	
91	4-933-134-61	SCREW (+PTPWH M2.6X6)	
92	4-995-728-01	HOLDER (A1), DISC	
93	4-995-729-01	HOLDER (A2), DISC	
94	4-996-243-01	SCREW (M2), +PSW	
95	4-977-358-31	CUSHION	
96	4-999-794-01	SPRING (DOOR), TORSION	
97	4-999-680-01	DOOR (CENTER)	
98	4-999-679-01	DOOR (FRONT)	
99	4-989-312-01	LATCH, NS	

7-3. CHASSIS SECTION

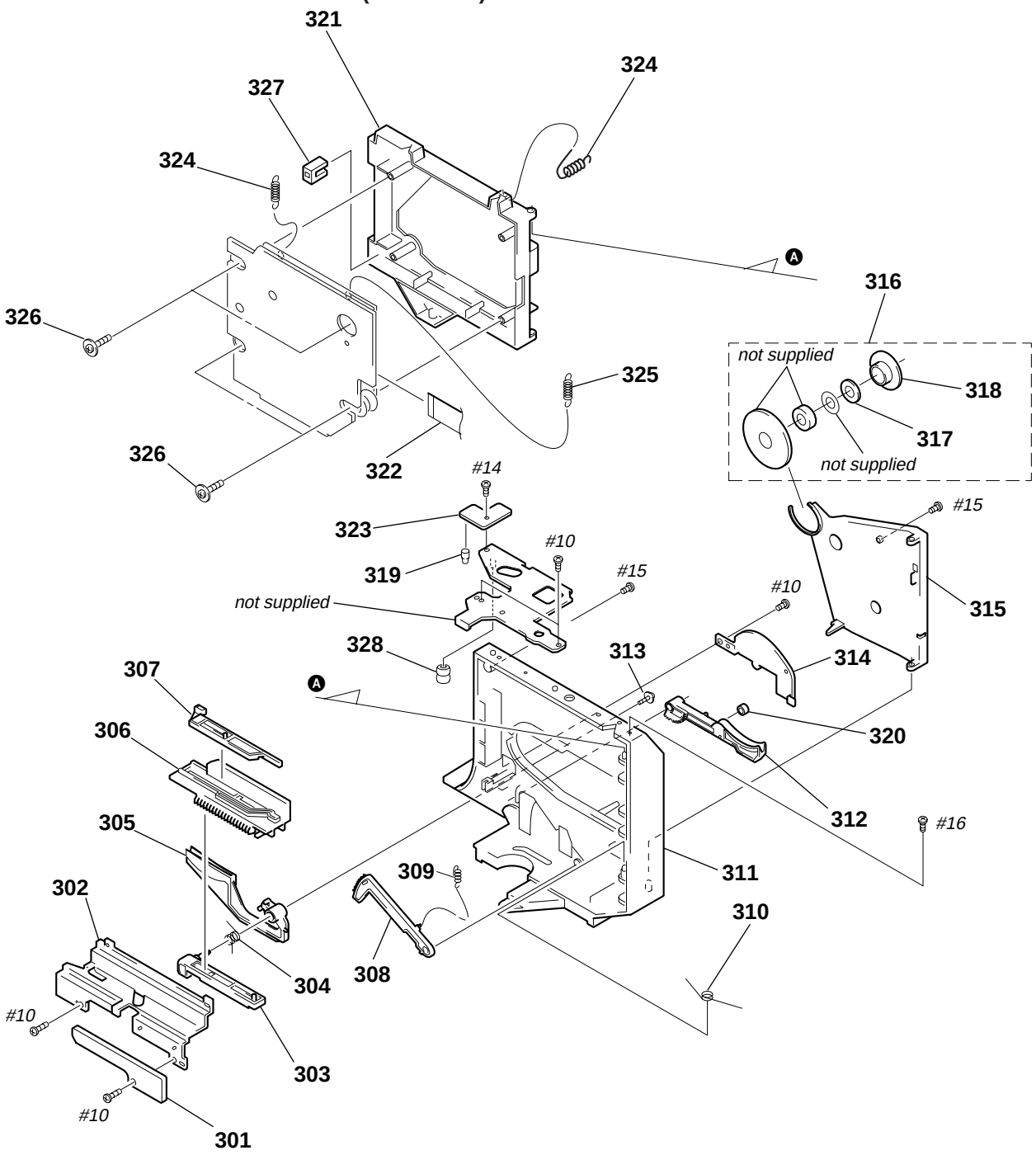


Ref. No.	Part No.	Description	Remarks
101	4-988-439-01	HOLDER, TABLE	
102	4-988-434-01	TABLE (50)	
103	4-957-577-31	SCREW PTP WH (2.6X8) (DIA. 10)	
* 104	4-990-371-11	HOLDER (LED)	
* 105	1-669-645-11	CD LED BOARD	
106	4-951-620-01	SCREW (2.6X8), +BVTP	
* 107	1-669-649-11	TRANS BOARD	
108	3-703-244-00	BUSHING (2104), CORD	
⚠ 109	1-569-008-21	ADAPTOR, CONVERSION 2P (SP,MY)	
⚠ 109	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK)	
110	1-782-558-21	WIRE (FLAT TYPE) (16 CORE)	
111	1-782-559-21	WIRE (FLAT TYPE) (9 CORE)	
* 112	4-990-370-11	COVER (CD)	

Ref. No.	Part No.	Description	Remarks
113	4-965-822-01	FOOT	
⚠ 114	1-690-609-21	CORD, POWER (US,CND)	
⚠ 114	1-696-847-11	CORD, POWER (AUS)	
⚠ 114	1-775-787-81	CORD, POWER (AEP,UK,G,SP,MY)	
* 115	A-4407-780-A	AMP BOARD, COMPLETE (F150:US)	
* 115	A-4407-782-A	AMP BOARD, COMPLETE (F150:CND)	
* 115	A-4407-793-A	AMP BOARD, COMPLETE (FR10:AEP,UK,G)	
* 115	A-4407-808-A	AMP BOARD, COMPLETE (FR10:AUS,SP,MY)	
⚠ T991	1-431-842-11	TRANSFORMER, POWER (AUS,SP,MY)	
⚠ T991	1-431-843-11	TRANSFORMER, POWER (US)	
⚠ T991	1-431-845-11	TRANSFORMER, POWER (AEP,UK,G)	
⚠ T991	1-431-844-11	TRANSFORMER, POWER (CND)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

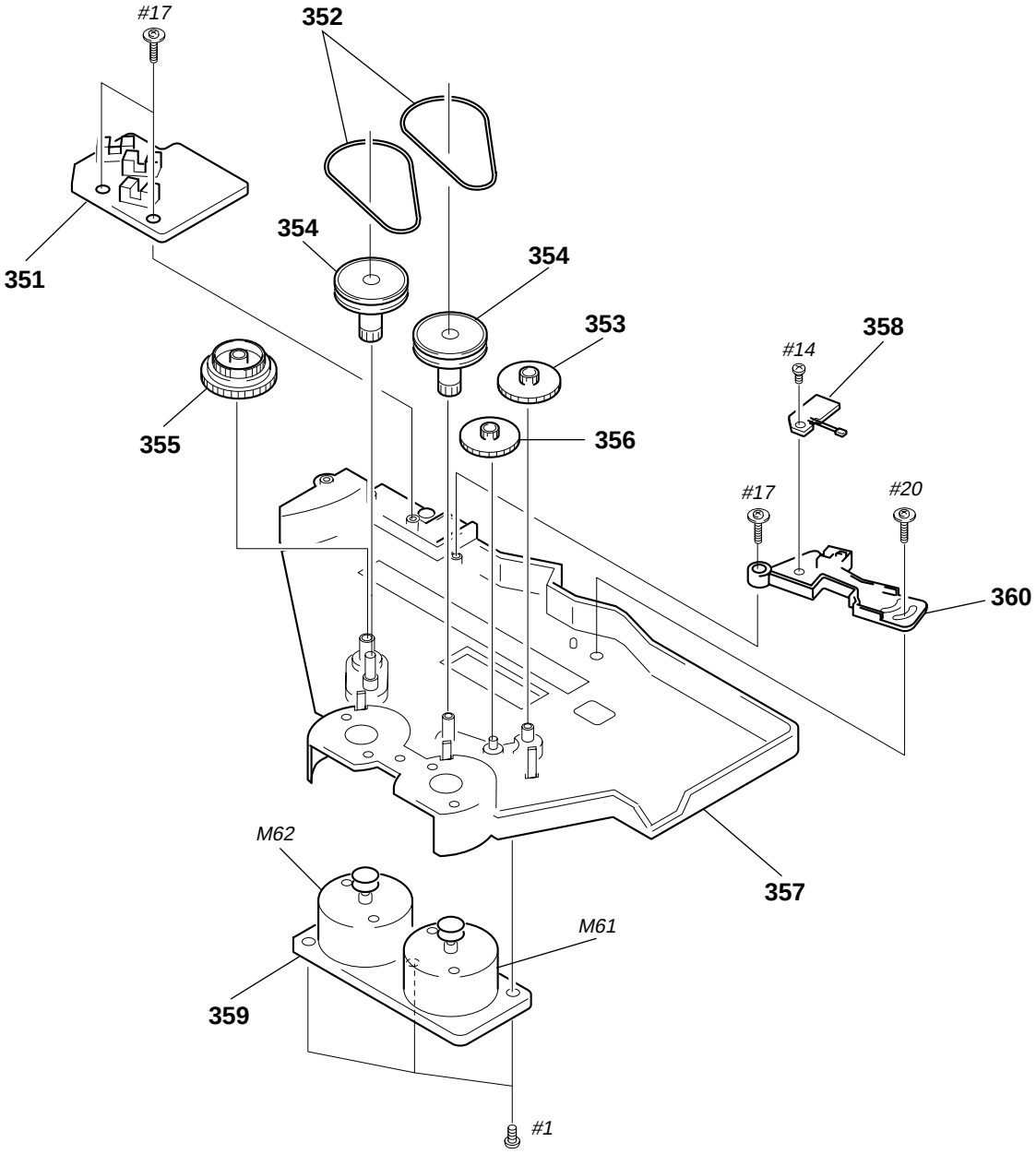
7-4. MECHANISM DECK SECTION-1 (CDM-46B1)



Ref. No.	Part No.	Description	Remarks
* 301	1-663-975-11	DOOR SW BOARD	
* 302	4-988-427-01	COVER, CAM	
303	4-988-420-01	SLIDER (LOADING)	
304	4-988-436-01	SPRING (LOADING), TORSION	
305	4-988-418-01	HOLDER (A), DISC	
* 306	4-988-417-01	SLIDER (CAM)	
307	4-988-433-01	SLIDER (LOCK)	
308	X-4948-020-1	LEVER (LOADING) ASSY	
309	4-988-438-01	SPRING (LEVER), TENSION	
310	4-988-437-01	SPRING (HOLDER), TORSION	
* 311	4-988-416-01	BASE, LOADING	
312	4-988-419-01	HOLDER (B), DISC	
313	4-992-069-01	SCREW (+PTPWH) (M2) (DIA. 7)	
* 314	4-988-454-01	COVER (LEVER)	

Ref. No.	Part No.	Description	Remarks
* 315	4-988-421-01	HOLDER (MAGNET)	
316	A-4672-522-A	MAGNET ASSY	
317	4-960-633-11	YOKE (MAGNET)	
318	4-999-139-01	PULLEY (B)	
* 319	4-976-473-01	HOLDER (LED-S)	
320	4-988-431-01	ROLLER (DISC)	
321	X-4948-019-1	HOLDER ASSY, BU	
322	1-777-874-11	WIRE (FLAT TYPE) (16 CORE)	
* 323	1-663-973-11	DISC SENSOR (S) BOARD	
324	4-988-440-01	SPRING (F-1), TENSION	
325	4-988-441-01	SPRING (F-2), TENSION	
326	4-957-577-21	SCREW PTP WH (2.6X8) (DIA. 10)	
327	4-992-413-02	STOPPER	
328	3-910-095-11	RUBBER, VIBRATION PROOF	

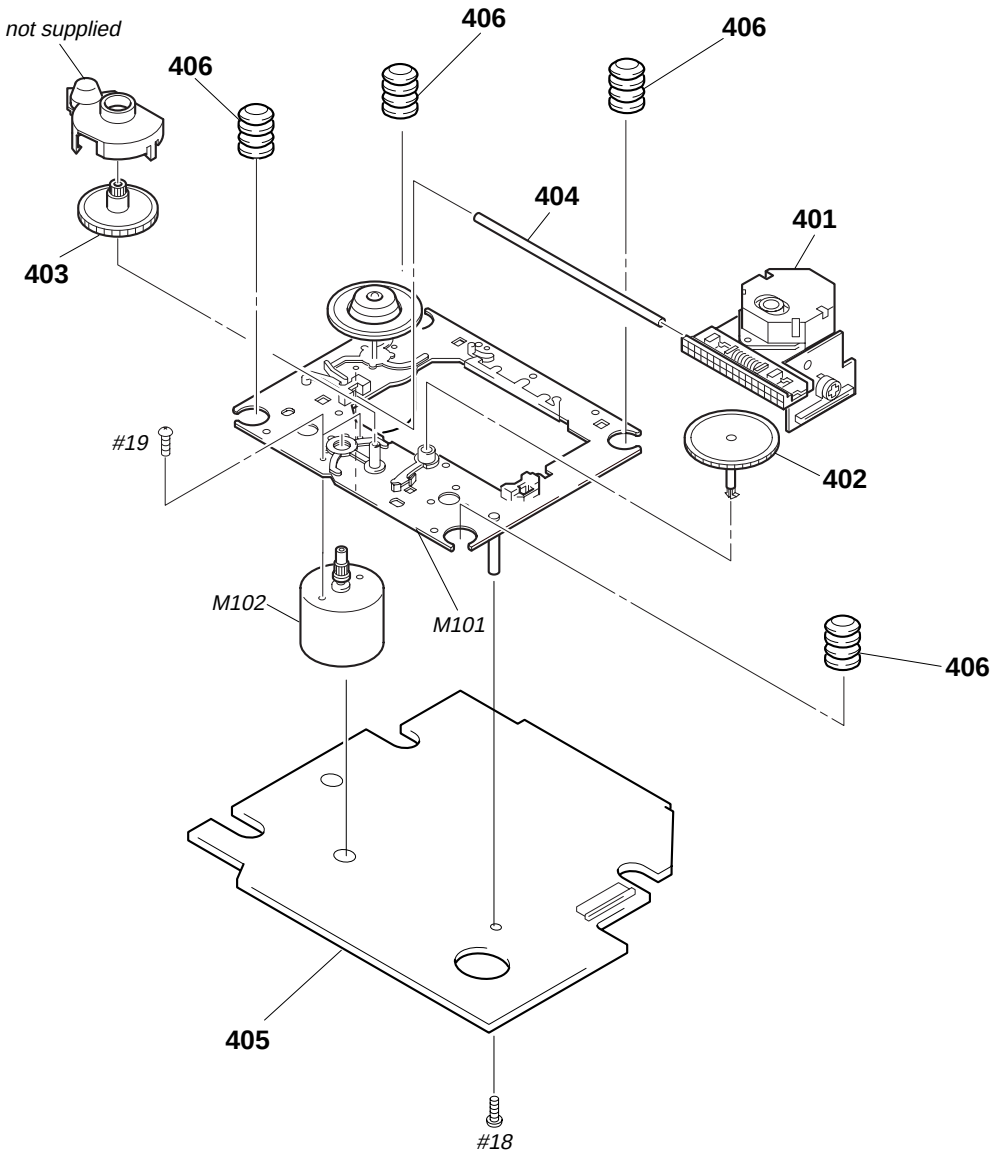
7-5. MECHANISM DECK SECTION-2 (CDM-46B1)



Ref. No.	Part No.	Description	Remarks
* 351	1-663-971-11	TABLE SENSOR BOARD	
352	4-988-414-01	BELT	
353	4-988-423-01	GEAR (A) (LOADING)	
354	4-988-425-01	PULLEY	
355	4-988-424-01	GEAR (TABLE)	
356	4-988-432-01	GEAR (B) (LOADING)	

Ref. No.	Part No.	Description	Remarks
* 357	4-988-426-01	BASE (CDM)	
* 358	1-663-972-11	DISC SENSOR (R) BOARD	
* 359	1-663-974-01	CD MOTOR BOARD	
* 360	4-990-669-01	HOLDER (SENSOR)	
M61	X-4948-434-1	MOTOR ASSY (LOADING)	
M62	X-4948-434-1	MOTOR ASSY (TABLE)	

7-6. OPTICAL PICK UP SECTION (KSS-213D/Q-NP)



Ref. No.	Part No.	Description	Remarks
⚠401	8-848-379-31	OPTICAL PICK-UP KSS-213D/Q-NP	
402	2-626-907-01	GEAR (A) (S)	
403	2-627-003-02	GEAR (B) (RP)	
404	2-626-908-01	SHAFT, SLED	

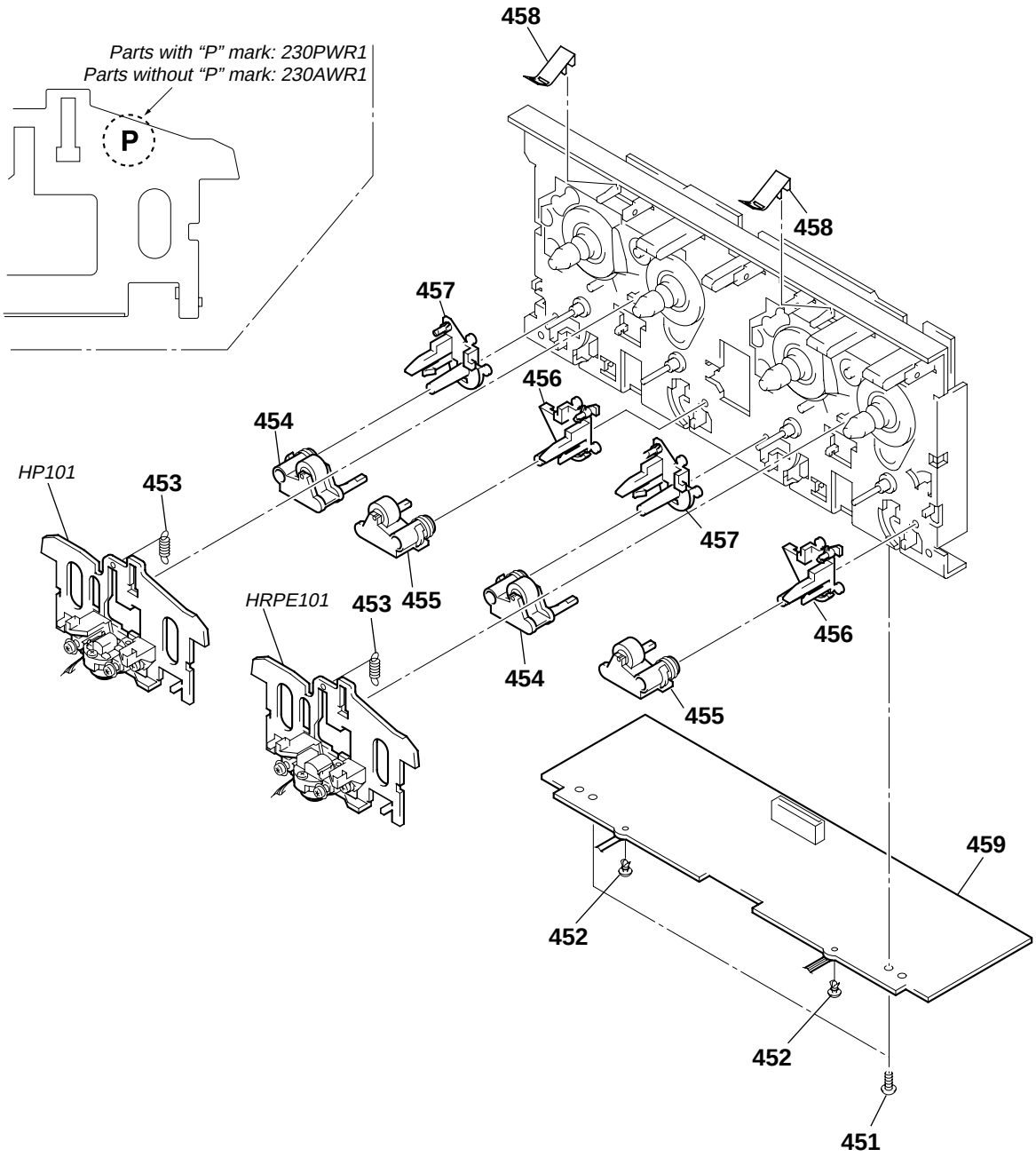
Ref. No.	Part No.	Description	Remarks
* 405	A-4699-869-A	BD BOARD, COMPLETE	
* 406	4-992-054-01	RUBBER, VIBRATION PROOF	
M101	X-2646-110-1	T, T CHASSIS ASSY (MG) (F) (SPINDLE)	
M102	X-2625-769-1	MOTOR GEAR ASSY (MB) (RP) (SLED)	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

7-7. TAPE MECHANISM DECK SECTION-1

(TCM-230AWR1
TCM-230PWR1)

***NOTE:** Two types of parts which are not interchangeable are available for the Head deck (A) ASSY and Head deck (B) ASSY.
When replacing the parts, refer to the following figure, and use the appropriate part*

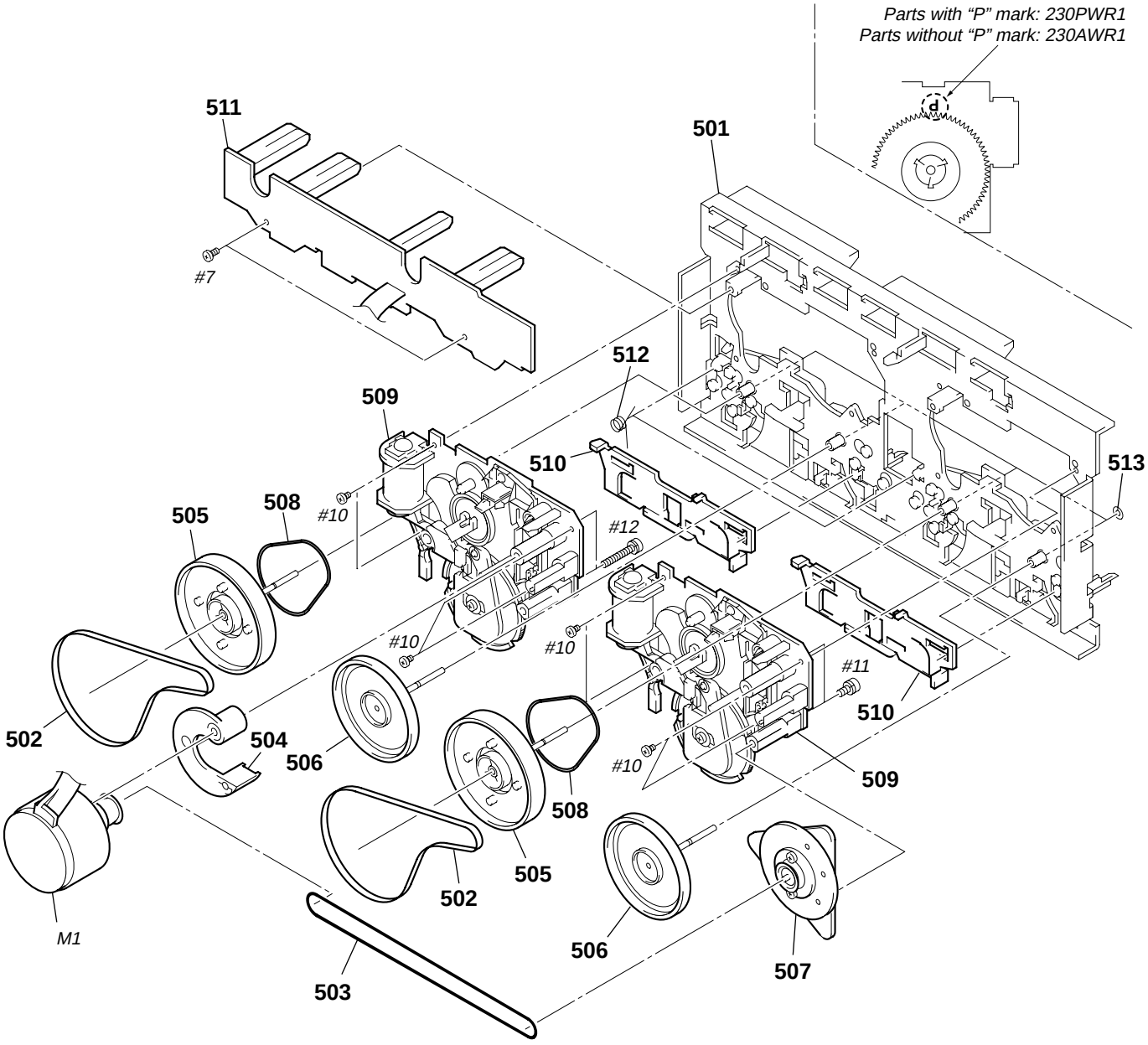


Ref. No.	Part No.	Description	Remarks
451	3-376-464-11	SCREW (+PTT 2.6X6), GROUND POINT	
452	3-911-116-21	RIVET, PUSH	
453	3-016-574-01	SPRING (HEAD),TENSION	
454	X-3374-156-2	PINCH LEVER (REV) ASSY	
455	X-3374-155-2	PINCH LEVER (FWD) ASSY	
456	3-016-564-01	BASE (PINCH LEVER FWD)	
457	3-016-565-01	BASE (PINCH LEVER REV)	
458	3-016-567-02	SPRING (CASSETTE), LEAF	
* 459	A-2007-731-A	AUDIO BOARD, COMPLETE	
HP101	A-2056-681-A	DECK (A) ASSY, HEAD (230AWR1) (*NOTE)	
HP101	A-2056-683-A	DECK (A) ASSY, HEAD (230PWR1) (*NOTE)	
HRPE101	A-2056-682-A	DECK (B) ASSY, HEAD (230AWR1) (*NOTE)	
HRPE101	A-2056-684-A	DECK (B) ASSY, HEAD (230PWR1) (*NOTE)	

7-8. TAPE MECHANISM DECK SECTION-1

(TCM-230AWR1 / TCM-230PWR1)

***NOTE:** Two types of parts which are not interchangeable are available for the mechanical block assembly. When replacing the parts, refer to the following figure, and use the appropriate part.*



Ref. No.	Part No.	Description	Remarks
* 501	X-3374-214-1	CHASSIS ASSY, MAIN	
502	3-016-570-01	BELT (CAPSTAN)	
503	3-016-569-01	BELT (TENSION)	
504	3-017-360-01	BRACKET (MOTOR)	
505	X-3374-234-1	FLYWHEEL (FWD) ASSY	
506	X-3374-235-1	FLYWHEEL (REV) ASSY	
507	X-3374-238-1	PULLEY ASSY, TENSION	
508	3-024-405-01	BELT (FR)	
509	A-2004-629-A	MECHANICAL BLOCK ASSY (230AWR1)	(*NOTE)
509	A-2004-630-A	MECHANICAL BLOCK ASSY (230PWR1)	(*NOTE)
510	3-016-566-01	SLIDER, REVERSE	
* 511	A-2007-732-A	LEAF SW BOARD, COMPLETE	
512	3-016-575-01	SPRING, TORSION	
513	3-019-208-01	WASHER, STOPPER	
M1	A-2004-628-A	MOTOR ASSY, CAPSTAN	

SECTION 8
ELECTRICAL PARTS LIST

AMP

NOTE:

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Abbreviation
  CND: Canadian SP: Singapore
  G: German AUS: Australian
  MY: Malaysia
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: µF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: µH
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA...: µA... , uPA... , µPA... ,
  uPB... , µPB... , uPC... , µPC... ,
  uPD..., µPD...

Ref. No.	Part No.	Description			Remarks
*	A-4407-780-A	AMP BOARD, COMPLETE (F150:US)			
		**********			
*	A-4407-782-A	AMP BOARD, COMPLETE (F150:CND)			
		**********			
*	A-4407-793-A	AMP BOARD, COMPLETE (FR10:AEP,UK,G)			
		**********			
*	A-4407-808-A	AMP BOARD, COMPLETE (FR10:AUS,SP,MY)			
		**********			
		< CAPACITOR >			
C801	1-128-582-11	ELECT	10uF	20%	100V (F150)
C801	1-126-963-11	ELECT	4.7uF	20%	50V (FR10)
C802	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C803	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C804	1-126-967-11	ELECT	47uF	20%	50V
C806	1-126-967-11	ELECT	47uF	20%	50V
C807	1-128-560-11	ELECT	22uF	20%	100V (F150/FR10:AUS,SP,MY)
C807	1-126-967-11	ELECT	47uF	20%	50V (FR10:AEP,UK,G)
C809	1-128-560-11	ELECT	22uF	20%	100V (F150/FR10:AUS,SP,MY)
C809	1-126-965-11	ELECT	22uF	20%	50V (FR10:AEP,UK,G)
C810	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C811	1-136-163-00	FILM	0.068uF	5%	50V
C812	1-136-163-00	FILM	0.068uF	5%	50V
C821	1-106-220-00	MYLAR	0.1uF	5%	100V (F150/FR10:AUS,SP,MY)
C821	1-136-169-00	FILM	0.22uF	5%	50V (FR10:AEP,UK,G)
C822	1-117-750-11	ELECT	3300uF	20%	63V (F150)
C822	1-125-866-11	ELECT	3300uF	20%	71V (FR10:AUS,SP,MY)
C822	1-126-974-11	ELECT	3300uF	20%	50V (FR10:AEP,UK,G)
C823	1-126-925-11	ELECT	470uF	20%	10V
C851	1-128-582-11	ELECT	10uF	20%	100V (F150)
C852	1-163-007-11	CERAMIC CHIP	680PF	10%	50V
C853	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C854	1-126-967-11	ELECT	47uF	20%	50V
C856	1-126-967-11	ELECT	47uF	20%	50V
C857	1-128-560-11	ELECT	22uF	20%	100V (F150/FR10:AUS,SP,MY)
C857	1-126-967-11	ELECT	47uF	20%	50V (FR10:AEP,UK,G)
C861	1-136-163-00	FILM	0.068uF	5%	50V
C862	1-136-163-00	FILM	0.068uF	5%	50V
C871	1-106-220-00	MYLAR	0.1uF	5%	100V (F150/FR10:AUS,SP,MY)
C871	1-136-169-00	FILM	0.22uF	5%	50V (FR10:AEP,UK,G)
C872	1-117-750-11	ELECT	3300uF	20%	63V (F150)
C872	1-126-974-11	ELECT	3300uF	20%	50V (FR10:AEP,UK,G)
C872	1-125-866-11	ELECT	3300uF	20%	71V (FR10:AUS,SP,MY)
		< CONNECTOR >			
CN803	1-564-511-11	PLUG, CONNECTOR 8P			
		< DIODE >			
D801	8-719-988-62	DIODE 1SS355			
D811	8-719-988-62	DIODE 1SS355			
D812	8-719-988-62	DIODE 1SS355			
D813	8-719-988-62	DIODE 1SS355			
D821	8-719-510-68	DIODE D5SBA20F01			
D851	8-719-988-62	DIODE 1SS355			
		< IC >			
IC801	8-749-922-65	IC STK-4221MK2 (F150:US)			
IC801	8-749-921-04	IC STK-4211MK2 (F150:CND)			
IC801	8-749-920-10	IC STK-4172MK2 (FR10:AEP,UK,G)			
IC801	8-749-921-68	IC STK-4231MK2 (FR10:AUS,SP,MY)			
		< TRANSISTOR >			
Q801	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
Q811	8-729-900-36	TRANSISTOR DTC124ES			
Q812	8-729-620-05	TRANSISTOR 2SC2603-EF			
Q851	8-729-140-84	TRANSISTOR 2SC1841-PAFAEA			
		< RESISTOR >			
R801	1-216-049-91	RES,CHIP	1K	5%	1/10W
R802	1-216-089-91	RES,CHIP	47K	5%	1/10W
R803	1-216-041-00	METAL CHIP	470	5%	1/10W (F150/FR10:AUS,SP,MY)
R803	1-216-045-00	METAL CHIP	680	5%	1/10W (FR10:AEP,UK,G)
R804	1-216-089-91	RES,CHIP	47K	5%	1/10W

AMP AUDIO

Ref. No.	Part No.	Description				Remarks
R805	1-249-425-11	CARBON	4.7K	5%	1/4W	F
						(F150/FR10:AUS,SP,MY)
R805	1-247-843-11	CARBON	3.3K	5%	1/4W	
						(FR10:AEP,UK,G)
R806	1-249-425-11	CARBON	4.7K	5%	1/4W	F
						(F150/FR10:AUS,SP,MY)
R806	1-247-843-11	CARBON	3.3K	5%	1/4W	
						(FR10:AEP,UK,G)
R807	1-212-881-11	FUSIBLE	100	5%	1/4W	F
R808	1-220-893-11	METAL	0.22	10%	5W	
						(F150/FR10:AUS,SP,MY)
R808	1-220-755-11	METAL	0.22	10%	2W	
						(FR10:AEP,UK,G)
R809	1-260-076-11	CARBON	10	5%	1/2W	
R811	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R812	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R813	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R815	1-247-843-11	CARBON	3.3K	5%	1/4W	
						(F150/FR10:AUS,SP,MY)
R815	1-249-417-11	CARBON	1K	5%	1/4W	F
						(FR10:AEP,UK,G)
R816	1-247-843-11	CARBON	3.3K	5%	1/4W	
						(F150/FR10:AUS,SP,MY)
R816	1-249-417-11	CARBON	1K	5%	1/4W	F
						(FR10:AEP,UK,G)
R821	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R822	1-216-109-00	METAL CHIP	330K	5%	1/10W	
						(F150)
R822	1-216-099-00	METAL CHIP	120K	5%	1/10W	
						(FR10:AEP,UK,G)
R822	1-216-111-00	METAL CHIP	390K	5%	1/10W	
						(FR10:AUS,SP,MY)
R823	1-216-073-00	METAL CHIP	10K	5%	1/10W	
						(F150/FR10:AUS,SP,MY)
R823	1-216-057-00	METAL CHIP	2.2K	5%	1/10W	
						(FR10:AEP,UK,G)
R824	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R825	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R826	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R827	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R851	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R852	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R853	1-216-041-00	METAL CHIP	470	5%	1/10W	
						(F150/FR10:AUS,SP,MY)
R853	1-216-045-00	METAL CHIP	680	5%	1/10W	
						(FR10:AEP,UK,G)
R854	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R855	1-249-425-11	CARBON	4.7K	5%	1/4W	F
						(F150/FR10:AUS,SP,MY)
R855	1-247-843-11	CARBON	3.3K	5%	1/4W	
						(FR10:AEP,UK,G)
R856	1-249-425-11	CARBON	4.7K	5%	1/4W	F
						(F150/FR10:AUS,SP,MY)
R856	1-247-843-11	CARBON	3.3K	5%	1/4W	
						(FR10:AEP,UK,G)
⚠R857	1-212-881-11	FUSIBLE	100	5%	1/4W	F
⚠R858	1-220-893-11	METAL	0.22	10%	5W	
						(F150/FR10:AUS,SP,MY)
⚠R858	1-220-755-11	METAL	0.22	10%	2W	
						(FR10:AEP,UK,G)
R859	1-260-076-11	CARBON	10	5%	1/2W	
R861	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R862	1-216-077-00	METAL CHIP	15K	5%	1/10W	
R863	1-216-097-91	RES,CHIP	100K	5%	1/10W	
		< THERMISTOR >				
TH811	1-807-796-11	THERMISTOR				
**********						
*	A-2007-731-A	AUDIO BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C301	1-162-289-31	CERAMIC	390PF	10%	50V	
C302	1-126-968-11	ELECT	100uF	20%	6.3V	
C303	1-162-282-31	CERAMIC	100PF	10%	50V	
C304	1-130-483-00	MYLAR	0.01uF	5%	50V	
C305	1-107-715-11	ELECT	22uF	20%	16V	
C311	1-162-289-31	CERAMIC	390PF	10%	50V	
C313	1-162-282-31	CERAMIC	100PF	10%	50V	
C314	1-130-487-00	MYLAR	0.022uF	5%	50V	
C315	1-126-233-11	ELECT	22uF	20%	50V	
C331	1-137-427-11	FILM	120PF	5%	50V	
C332	1-162-288-31	CERAMIC	330PF	10%	50V	
C333	1-162-209-31	CERAMIC	27PF	5%	50V	
C401	1-162-289-31	CERAMIC	390PF	10%	50V	
C402	1-126-968-11	ELECT	100uF	20%	6.3V	
C403	1-162-282-31	CERAMIC	100PF	10%	50V	
C404	1-130-483-00	MYLAR	0.01uF	5%	50V	
C405	1-107-715-11	ELECT	22uF	20%	16V	
C411	1-162-289-31	CERAMIC	390PF	10%	50V	
C413	1-162-282-31	CERAMIC	100PF	10%	50V	
C414	1-130-487-00	MYLAR	0.022uF	5%	50V	
C415	1-126-233-11	ELECT	22uF	20%	50V	
C431	1-137-427-11	FILM	120PF	5%	50V	
C432	1-162-288-31	CERAMIC	330PF	10%	50V	
C433	1-162-209-31	CERAMIC	27PF	5%	50V	
C601	1-104-396-11	ELECT	10uF	20%	16V	
C602	1-104-396-11	ELECT	10uF	20%	16V	
C611	1-104-396-11	ELECT	10uF	20%	16V	
C612	1-104-396-11	ELECT	10uF	20%	16V	
C621	1-137-150-11	FILM	0.01uF	5%	100V	
C622	1-126-961-11	ELECT	2.2uF	20%	50V	
C623	1-136-155-00	FILM	0.015uF	5%	50V	
C624	1-130-481-00	MYLAR	0.0068uF	5%	50V	
C625	1-130-481-00	MYLAR	0.0068uF	5%	50V	
C627	1-124-903-11	ELECT	1uF	20%	50V	
C628	1-136-153-00	FILM	0.01uF	5%	50V	
C642	1-104-664-11	ELECT	47uF	20%	16V	
		< CONNECTOR >				
CN601	1-568-834-11	SOCKET, CONNECTOR 15P				
		< IC >				
IC601	8-759-111-44	IC UPC4570C-1				
IC602	8-759-143-54	IC UPC1330HA				
IC611	8-759-111-44	IC UPC4570C-1				

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description				Remarks
		< COIL >				
L331	1-410-780-11	INDUCTOR	27mH			
L431	1-410-780-11	INDUCTOR	27mH			
L601	1-414-193-41	INDUCTOR	220uH			
L602	1-414-193-41	INDUCTOR	220uH			
		< TRANSISTOR >				
Q621	8-729-142-46	TRANSISTOR	2SC2001-LK			
Q622	8-729-142-46	TRANSISTOR	2SC2001-LK			
Q623	8-729-801-93	TRANSISTOR	2SD1387			
		< RESISTOR >				
R301	1-247-881-00	CARBON	120K	5%	1/4W	
R302	1-249-409-11	CARBON	220	5%	1/4W	F
R303	1-249-433-11	CARBON	22K	5%	1/4W	
R304	1-247-889-00	CARBON	270K	5%	1/4W	
R305	1-247-858-11	CARBON	13K	5%	1/4W	
R311	1-247-881-00	CARBON	120K	5%	1/4W	
R312	1-247-807-31	CARBON	100	5%	1/4W	
R314	1-247-882-11	CARBON	130K	5%	1/4W	
R315	1-247-850-11	CARBON	6.2K	5%	1/4W	
R331	1-249-430-11	CARBON	12K	5%	1/4W	
R401	1-247-881-00	CARBON	120K	5%	1/4W	
R402	1-249-409-11	CARBON	220	5%	1/4W	F
R403	1-249-433-11	CARBON	22K	5%	1/4W	
R404	1-247-889-00	CARBON	270K	5%	1/4W	
R405	1-247-858-11	CARBON	13K	5%	1/4W	
R411	1-247-881-00	CARBON	120K	5%	1/4W	
R412	1-247-807-31	CARBON	100	5%	1/4W	
R414	1-247-882-11	CARBON	130K	5%	1/4W	
R415	1-247-850-11	CARBON	6.2K	5%	1/4W	
R431	1-249-430-11	CARBON	12K	5%	1/4W	
R601	1-249-409-11	CARBON	220	5%	1/4W	F
R602	1-249-409-11	CARBON	220	5%	1/4W	F
R608	1-249-409-11	CARBON	220	5%	1/4W	F
R609	1-249-433-11	CARBON	22K	5%	1/4W	
R611	1-249-409-11	CARBON	220	5%	1/4W	F
R612	1-249-409-11	CARBON	220	5%	1/4W	F
R621	1-212-851-00	FUSIBLE	5.6	5%	1/4W	F
R622	1-212-851-00	FUSIBLE	5.6	5%	1/4W	F
R623	1-249-432-11	CARBON	18K	5%	1/4W	
R624	1-249-432-11	CARBON	18K	5%	1/4W	
R625	1-249-429-11	CARBON	10K	5%	1/4W	
		< VARIABLE RESISTOR >				
RV301	1-238-598-11	RES, ADJ, CARBON 2.2K				
RV311	1-238-598-11	RES, ADJ, CARBON 2.2K				
RV341	1-241-768-11	RES, ADJ, CARBON 220K				
RV401	1-238-598-11	RES, ADJ, CARBON 2.2K				
RV411	1-238-598-11	RES, ADJ, CARBON 2.2K				
RV441	1-241-768-11	RES, ADJ, CARBON 220K				
		< TRANSFORMER >				
T621	1-423-980-11	TRANSFORMER, BIAS OSCILLATION				

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Ref. No.	Part No.	Description			Remarks
*	A-4699-869-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C104	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C105	1-163-023-00	CERAMIC CHIP	0.015uF	5%	50V
C106	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C107	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C108	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C109	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C110	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C111	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C112	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C113	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C114	1-164-492-11	CERAMIC CHIP	0.15uF	10%	16V
C115	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C116	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C117	1-163-001-11	CERAMIC CHIP	220PF	10%	50V
C118	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C119	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C120	1-124-234-00	ELECT	22uF	20%	16V
C121	1-164-182-11	CERAMIC CHIP	0.0033uF	10%	50V
C122	1-126-963-11	ELECT	4.7uF	20%	50V
C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C124	1-104-396-11	ELECT	10uF	20%	16V
C125	1-126-177-11	ELECT	100uF	20%	10V
C126	1-126-177-11	ELECT	100uF	20%	10V
C127	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C128	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C129	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C130	1-124-443-00	ELECT	100uF	20%	10V
C131	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C132	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C133	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C142	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C151	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C152	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C153	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C154	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
C155	1-163-093-00	CERAMIC CHIP	10PF	5%	50V
C156	1-163-085-00	CERAMIC CHIP	2PF		50V
C157	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C158	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C159	1-163-101-00	CERAMIC CHIP	22PF	5%	50V
C160	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C161	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C162	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C163	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C164	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C165	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V
C166	1-124-443-00	ELECT	100uF	20%	10V
C167	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C171	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C172	1-126-177-11	ELECT	100uF	20%	10V
C173	1-124-589-11	ELECT	47uF	20%	16V

BD

Ref. No.	Part No.	Description			Remarks
C174	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C175	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C181	1-104-664-11	ELECT	47uF	20%	16V
C182	1-104-664-11	ELECT	47uF	20%	16V
C183	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C184	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
		< CONNECTOR >			
CN101	1-770-173-11	CONNECTOR, FFC/FPC 16P			
CN102	1-691-894-21	SOCKET, CONNECTOR 16P			
* CN103	1-568-852-11	SOCKET, CONNECTOR 9P			
		< DIODE >			
D151	8-719-911-19	DIODE 1SS119			
D151	8-719-991-33	DIODE 1SS133T-77			
		< IC >			
IC101	8-759-449-64	IC LA9240M			
IC102	8-759-449-65	IC LC78622E			
IC103	8-759-449-66	IC LA6541			
IC104	8-759-428-57	IC LC89170M			
		< JUMPER RESISTOR >			
JW1	1-216-295-91	SHORT	0		
JW2	1-216-295-91	SHORT	0		
JW4	1-216-295-91	SHORT	0		
JW5	1-216-295-91	SHORT	0		
JW6	1-216-295-91	SHORT	0		
JW7	1-216-295-91	SHORT	0		
JW8	1-216-295-91	SHORT	0		
JW9	1-216-295-91	SHORT	0		
JW10	1-216-295-91	SHORT	0		
		< TRANSISTOR >			
Q101	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q102	8-729-119-78	TRANSISTOR 2SC403SP-51			
Q103	8-729-119-76	TRANSISTOR 2SA1175-HFE			
		< RESISTOR >			
R101	1-216-097-91	RES,CHIP	100K	5%	1/10W
R102	1-216-093-00	METAL CHIP	68K	5%	1/10W
R103	1-216-093-00	METAL CHIP	68K	5%	1/10W
R104	1-216-093-00	METAL CHIP	68K	5%	1/10W
R105	1-216-093-00	METAL CHIP	68K	5%	1/10W
R106	1-216-097-91	RES,CHIP	100K	5%	1/10W
R107	1-216-097-91	RES,CHIP	100K	5%	1/10W
R108	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R109	1-216-076-00	METAL CHIP	13K	5%	1/10W
R110	1-216-093-00	METAL CHIP	68K	5%	1/10W
R111	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R112	1-216-101-00	METAL CHIP	150K	5%	1/10W
R113	1-216-099-00	METAL CHIP	120K	5%	1/10W
R114	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R115	1-216-085-00	METAL CHIP	33K	5%	1/10W
R116	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R117	1-216-085-00	METAL CHIP	33K	5%	1/10W
R118	1-216-081-00	METAL CHIP	22K	5%	1/10W
R119	1-216-064-00	METAL CHIP	4.3K	5%	1/10W
R120	1-216-085-00	METAL CHIP	33K	5%	1/10W

Ref. No.	Part No.	Description			Remarks
R121	1-216-059-00	METAL CHIP	2.7K	5%	1/10W
R122	1-216-083-00	METAL CHIP	27K	5%	1/10W
R123	1-216-099-00	METAL CHIP	120K	5%	1/10W
R124	1-216-093-00	METAL CHIP	68K	5%	1/10W
R125	1-216-089-91	RES,CHIP	47K	5%	1/10W
R126	1-216-037-00	METAL CHIP	330	5%	1/10W
R127	1-216-089-91	RES,CHIP	47K	5%	1/10W
R128	1-216-077-00	METAL CHIP	15K	5%	1/10W
R129	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R130	1-216-113-00	METAL CHIP	470K	5%	1/10W
R131	1-216-113-00	METAL CHIP	470K	5%	1/10W
R132	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R133	1-216-113-00	METAL CHIP	470K	5%	1/10W
R134	1-216-113-00	METAL CHIP	470K	5%	1/10W
R135	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R136	1-216-073-00	METAL CHIP	10K	5%	1/10W
R137	1-216-009-00	METAL CHIP	22	5%	1/10W
R138	1-216-089-91	RES,CHIP	47K	5%	1/10W
R141	1-216-083-00	METAL CHIP	27K	5%	1/10W
R151	1-216-045-00	METAL CHIP	680	5%	1/10W
R152	1-216-093-00	METAL CHIP	68K	5%	1/10W
R153	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R154	1-216-085-00	METAL CHIP	33K	5%	1/10W
R155	1-216-089-91	RES,CHIP	47K	5%	1/10W
R156	1-216-081-00	METAL CHIP	22K	5%	1/10W
R157	1-216-077-00	METAL CHIP	15K	5%	1/10W
R158	1-216-049-91	RES,CHIP	1K	5%	1/10W
R159	1-216-083-00	METAL CHIP	27K	5%	1/10W
R160	1-216-037-00	METAL CHIP	330	5%	1/10W
R161	1-216-073-00	METAL CHIP	10K	5%	1/10W
R162	1-216-037-00	METAL CHIP	330	5%	1/10W
R163	1-216-049-91	RES,CHIP	1K	5%	1/10W
R164	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R165	1-216-025-91	RES,CHIP	100	5%	1/10W
R166	1-216-025-91	RES,CHIP	100	5%	1/10W
R171	1-216-025-91	RES,CHIP	100	5%	1/10W
R172	1-216-025-91	RES,CHIP	100	5%	1/10W
R173	1-216-025-91	RES,CHIP	100	5%	1/10W
R174	1-216-025-91	RES,CHIP	100	5%	1/10W
R181	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R182	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R183	1-216-073-00	METAL CHIP	10K	5%	1/10W
R184	1-216-073-00	METAL CHIP	10K	5%	1/10W
R191	1-216-025-91	RES,CHIP	100	5%	1/10W
R192	1-216-041-00	METAL CHIP	470	5%	1/10W
R193	1-216-041-00	METAL CHIP	470	5%	1/10W
R194	1-216-025-91	RES,CHIP	100	5%	1/10W
R195	1-216-041-00	METAL CHIP	470	5%	1/10W
R196	1-216-025-91	RES,CHIP	100	5%	1/10W
R197	1-216-025-91	RES,CHIP	100	5%	1/10W
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT SW)			
		< VIBRATOR >			
X101	1-577-576-21	VIBRATOR, CRYSTAL 16.93MHz			

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Ref. No.	Part No.	Description	Remarks
*	1-669-650-11	CD DOOR BOARD	
		**********	
		< SWITCH >	
S413	1-762-386-11	SWITCH, PUSH	
		**********	
*	1-669-645-11	CD LED BOARD	
		**********	
		< DIODE >	
D637	8-719-058-64	DIODE SEL5823A	
D638	8-719-058-64	DIODE SEL5823A	
D639	8-719-058-03	DIODE SEL5423E	
D640	8-719-058-04	DIODE SEL5223S	
		< RESISTOR >	
R653	1-249-402-11	CARBON 56 5% 1/4W F	
R654	1-249-402-11	CARBON 56 5% 1/4W F	
		**********	
*	1-663-974-11	CD MOTOR BOARD	
		**********	
		< CONNECTOR >	
CN61	1-506-469-11	PIN, CONNECTOR 4P	
M61	X-4948-434-1	MOTOR ASSY (LOADING)	
M62	X-4948-434-1	MOTOR ASSY (TABLE)	
		**********	
*	1-663-972-11	DISC SENSOR (R) BOARD	
		**********	
*	4-990-669-01	HOLDER (SENSOR)	
	7-685-132-19	SCREW +BTP 2.6X5 TYPE2 N-S	
		< TRANSISTOR >	
Q51	8-729-926-31	PHOTO TRANSISTOR PT483F1S	
		**********	
*	1-663-973-11	DISC SENSOR (S) BOARD	
		**********	
*	4-976-473-01	HOLDER (LED-S)	
		< CONNECTOR >	
* CN53	1-568-951-11	PIN, CONNECTOR 2P	
		< DIODE >	
D51	8-719-055-84	DIODE GL-528VS1	
		< RESISTOR >	
R54	1-249-409-11	CARBON 220 5% 1/4W F	
		**********	

Ref. No.	Part No.	Description	Remarks
*	1-669-681-11	DOOR LED BOARD	
		**********	
		< DIODE >	
D633	8-719-058-03	DIODE SEL5423E	
D634	8-719-058-03	DIODE SEL5423E	
D635	8-719-058-03	DIODE SEL5423E	
D636	8-719-058-03	DIODE SEL5423E	
		< RESISTOR >	
R652	1-249-402-11	CARBON 56 5% 1/4W F	
		**********	
*	1-663-975-11	DOOR SW BOARD	
		**********	
		< CONNECTOR >	
* CN54	1-568-941-11	PIN, CONNECTOR 3P	
		< SWITCH >	
S51	1-571-958-11	SWITCH, PUSH (1 KEY)	
S52	1-571-958-11	SWITCH, PUSH (1 KEY)	
		**********	
*	A-4407-821-A	FUNC BOARD, COMPLETE	
		**********	
		< DIODE >	
D619	8-719-058-64	DIODE SEL5823A (CD PLUS ONE)	
D620	8-719-058-04	DIODE SEL5223S (1)	
D621	8-719-058-04	DIODE SEL5223S (2)	
D622	8-719-058-04	DIODE SEL5223S (3)	
D623	8-719-058-04	DIODE SEL5223S (4)	
D624	8-719-058-04	DIODE SEL5223S (5)	
		< RESISTOR >	
R639	1-216-027-00	METAL CHIP 120 5% 1/10W	
R640	1-216-029-00	METAL CHIP 150 5% 1/10W	
R641	1-216-029-00	METAL CHIP 150 5% 1/10W	
R642	1-216-029-00	METAL CHIP 150 5% 1/10W	
R643	1-216-029-00	METAL CHIP 150 5% 1/10W	
R644	1-216-029-00	METAL CHIP 150 5% 1/10W	
R686	1-216-033-00	METAL CHIP 220 5% 1/10W	
R687	1-216-035-00	METAL CHIP 270 5% 1/10W	
R688	1-216-039-00	METAL CHIP 390 5% 1/10W	
R689	1-216-041-00	METAL CHIP 470 5% 1/10W	
R690	1-216-045-00	METAL CHIP 680 5% 1/10W	
R691	1-216-047-91	RES,CHIP 820 5% 1/10W	
R692	1-216-051-00	METAL CHIP 1.2K 5% 1/10W	
R693	1-216-053-00	METAL CHIP 1.5K 5% 1/10W	
R694	1-216-057-00	METAL CHIP 2.2K 5% 1/10W	
R695	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R696	1-216-065-91	RES,CHIP 4.7K 5% 1/10W	
R697	1-216-069-00	METAL CHIP 6.8K 5% 1/10W	
R698	1-216-073-00	METAL CHIP 10K 5% 1/10W	

FUNC | HP/MIC | LEAF SW

Ref. No.	Part No.	Description				Remarks
		< SWITCH >				
S631	1-762-875-21	SWITCH, KEYBOARD (FUNCTION)				
S632	1-762-875-21	SWITCH, KEYBOARD (CONTINUE)				
S633	1-762-875-21	SWITCH, KEYBOARD (SHUFFLE)				
S634	1-762-875-21	SWITCH, KEYBOARD (PROGRAM)				
S635	1-762-875-21	SWITCH, KEYBOARD (REPEAT)				
S636	1-762-875-21	SWITCH, KEYBOARD (CD PLUS ONE)				
S637	1-762-875-21	SWITCH, KEYBOARD (LOOP)				
S638	1-762-875-21	SWITCH, KEYBOARD (FLASH)				
S639	1-762-875-21	SWITCH, KEYBOARD (GROUP ENTER)				
S640	1-762-875-21	SWITCH, KEYBOARD (1)				
S641	1-762-875-21	SWITCH, KEYBOARD (2)				
S642	1-762-875-21	SWITCH, KEYBOARD (3)				
S643	1-762-875-21	SWITCH, KEYBOARD (4)				
S644	1-762-875-21	SWITCH, KEYBOARD (5)				
**********						
*	1-669-648-11	HP/MIC BOARD				
		**********				
		< CAPACITOR >				
C781	1-126-964-11	ELECT	10uF	20%	50V	(FR10:SP,MY)
C782	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V	(FR10:SP,MY)
C783	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	(FR10:SP,MY)
C784	1-163-005-11	CERAMIC CHIP	470PF	10%	50V	(FR10:SP,MY)
C785	1-126-959-11	ELECT	0.47uF	20%	50V	(FR10:SP,MY)
C786	1-163-243-11	CERAMIC CHIP	47PF	5%	50V	(FR10:SP,MY)
C788	1-126-964-11	ELECT	10uF	20%	50V	(FR10:SP,MY)
C789	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V	(FR10:SP,MY)
C790	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V	(FR10:SP,MY)
C799	1-126-964-11	ELECT	10uF	20%	50V	(FR10:SP,MY)
		< IC >				
IC781	8-759-634-50	IC M5218AL (FR10:SP,MY)				
		< JACK >				
J781	1-784-224-11	JACK (LARGE TYPE)(PHONES)				
J782	1-784-224-11	JACK (LARGE TYPE)(FR10:SP,MY)				
		< RESISTOR >				
R781	1-216-073-00	METAL CHIP	10K	5%	1/10W	(FR10:SP,MY)
R782	1-216-049-91	RES,CHIP	1K	5%	1/10W	(FR10:SP,MY)
R783	1-216-097-91	RES,CHIP	100K	5%	1/10W	(FR10:SP,MY)
R784	1-216-049-91	RES,CHIP	1K	5%	1/10W	(FR10:SP,MY)
R785	1-216-081-00	METAL CHIP	22K	5%	1/10W	(FR10:SP,MY)
R787	1-216-073-00	METAL CHIP	10K	5%	1/10W	(FR10:SP,MY)
R788	1-216-103-00	METAL CHIP	180K	5%	1/10W	(FR10:SP,MY)
R789	1-216-025-91	RES,CHIP	100	5%	1/10W	(FR10:SP,MY)
		< VARIABLE RESISTOR >				
RV781	1-225-458-11	RES, VAR, CARBON 50K (FR10:SP,MY)				
**********						
*	A-2007-732-A	LEAF SW BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C1001	1-124-286-00	ELECT	33uF	20%	10V	
		< CONNECTOR >				
CN1001	1-568-860-11	SOCKET, CONNECTOR 17P				
		< DIODE >				
D1001	8-719-911-19	DIODE 1SS119				
D1002	8-719-911-19	DIODE 1SS119				
		< IC >				
IC1001	8-749-014-38	IC PHOTO INTERRUPTER SG-264				
IC1002	8-749-014-38	IC PHOTO INTERRUPTER SG-264				
		< TRANSISTOR >				
Q1001	8-729-900-65	TRANSISTOR DTA144ES				
		< RESISTOR >				
R907	1-247-879-11	CARBON	100K	5%	1/4W	
R1001	1-249-409-11	CARBON	220	5%	1/4W	F
R1002	1-249-409-11	CARBON	220	5%	1/4W	F
R1003	1-249-414-11	CARBON	560	5%	1/4W	F
R1004	1-247-834-11	CARBON	1.3K	5%	1/4W	
R1005	1-247-818-11	CARBON	300	5%	1/4W	
R1006	1-247-864-11	CARBON	24K	5%	1/4W	
R1007	1-247-856-00	CARBON	11K	5%	1/4W	
R1008	1-249-417-11	CARBON	1K	5%	1/4W	F
		< VARIABLE RESISTOR >				
RV1001	1-241-785-11	RES, ADJ, CARBON 10K				
RV1002	1-241-785-11	RES, ADJ, CARBON 10K				
		< SWITCH >				
S1001	1-570-953-11	SWITCH, PUSH (1 KEY) (A PLAY)				
S1002	1-570-953-11	SWITCH, PUSH (1 KEY) (B PLAY)				
S1003	1-771-333-11	SWITCH, LEAF (A HALF)				
S1004	1-771-205-11	SWITCH, LEAF (A 120/70)				
S1005	1-771-205-11	SWITCH, LEAF (REC A)				
S1006	1-771-333-11	SWITCH, LEAF (B HALF)				
S1008	1-771-205-11	SWITCH, LEAF (B 120/70)				
S1009	1-771-205-11	SWITCH, LEAF (REC B)				
**********						

Ref. No.	Part No.	Description			Remarks
*	A-4407-776-A	MAIN BOARD, COMPLETE (F150:US)			
		**********			
*	A-4407-789-A	MAIN BOARD, COMPLETE (FR10:AEP,UK,G)			
		**********			
*	A-4407-830-A	MAIN BOARD, COMPLETE (FR10:AUS)			
		**********			
*	A-4407-811-A	MAIN BOARD, COMPLETE (FR10:SP,MY)			
		**********			
*	A-4414-836-A	MAIN BOARD, COMPLETE (F150:CND)			
		**********			
		< CAPACITOR >			
C101	1-162-286-21	CERAMIC	220PF	10%	50V
C102	1-162-286-21	CERAMIC	220PF	10%	50V
C104	1-126-934-51	ELECT	220UF		50V
C111	1-137-195-11	FILM	0.56uF	5%	50V
C112	1-136-158-00	FILM	0.027uF	5%	50V
C113	1-136-167-00	FILM	0.15uF	5%	50V
C114	1-130-480-00	MYLAR	0.0056uF	5%	50V
C115	1-130-489-00	MYLAR	0.033uF	5%	50V
C116	1-130-473-00	MYLAR	0.0015uF	5%	50V
C117	1-136-153-00	FILM	0.01uF	5%	50V
C118	1-162-288-31	CERAMIC	330PF	10%	50V
C119	1-130-479-00	MYLAR	0.0047uF	5%	50V
C120	1-136-153-00	FILM	0.01uF	5%	50V
C121	1-126-964-11	ELECT	10uF	20%	50V
C122	1-162-291-31	CERAMIC	560PF	10%	50V
C123	1-136-165-00	FILM	0.1uF	5%	50V
C124	1-136-165-00	FILM	0.1uF	5%	50V
C125	1-126-964-11	ELECT	10uF	20%	50V
C131	1-126-967-11	ELECT	47uF	20%	16V
C132	1-126-967-11	ELECT	47uF	20%	16V
C135	1-126-964-11	ELECT	10uF	20%	50V
C136	1-164-159-21	CERAMIC	0.1uF		50V
C141	1-126-959-11	ELECT	0.47uF	20%	50V
C151	1-162-286-21	CERAMIC	220PF	10%	50V
C152	1-162-286-21	CERAMIC	220PF	10%	50V
C161	1-137-195-11	FILM	0.56uF	5%	50V
C162	1-136-158-00	FILM	0.027uF	5%	50V
C163	1-136-167-00	FILM	0.15uF	5%	50V
C164	1-130-480-00	MYLAR	0.0056uF	5%	50V
C165	1-130-489-00	MYLAR	0.033uF	5%	50V
C166	1-130-473-00	MYLAR	0.0015uF	5%	50V
C167	1-136-153-00	FILM	0.01uF	5%	50V
C168	1-162-288-31	CERAMIC	330PF	10%	50V
C169	1-130-479-00	MYLAR	0.0047uF	5%	50V
C170	1-136-153-00	FILM	0.01uF	5%	50V
C171	1-126-964-11	ELECT	10uF	20%	50V
C172	1-162-291-31	CERAMIC	560PF	10%	50V
C173	1-136-165-00	FILM	0.1uF	5%	50V
C174	1-136-165-00	FILM	0.1uF	5%	50V
C175	1-126-964-11	ELECT	10uF	20%	50V
C176	1-136-495-11	FILM	0.068uF	5%	50V
C177	1-136-153-00	FILM	0.01uF	5%	50V
C191	1-126-964-11	ELECT	10uF	20%	50V
C192	1-162-292-31	CERAMIC	680PF	10%	50V
C193	1-126-964-11	ELECT	10uF	20%	50V
C194	1-162-286-21	CERAMIC	220PF	10%	50V

Ref. No.	Part No.	Description			Remarks
C195	1-162-306-11	CERAMIC	0.01uF	20%	16V
C196	1-162-306-11	CERAMIC	0.01uF	20%	16V
C301	1-126-960-11	ELECT	1uF	20%	50V
C302	1-130-479-00	MYLAR	0.0047uF	5%	50V
C303	1-136-165-00	FILM	0.1uF	5%	50V
C304	1-136-165-00	FILM	0.1uF	5%	50V
C305	1-126-964-11	ELECT	10uF	20%	50V
C306	1-126-960-11	ELECT	1uF	20%	50V
C307	1-126-959-11	ELECT	0.47uF	20%	50V
C308	1-126-964-11	ELECT	10uF	20%	50V
C309	1-136-173-00	FILM	0.47uF	5%	50V
C310	1-162-290-31	CERAMIC	470PF	10%	50V
C311	1-126-964-11	ELECT	10uF	20%	50V
C312	1-126-959-11	ELECT	0.47uF	20%	50V
C313	1-162-294-31	CERAMIC	0.001uF	10%	50V
C314	1-126-964-11	ELECT	10uF	20%	50V
C315	1-126-963-11	ELECT	4.7uF	20%	50V
C316	1-104-665-11	ELECT	100uF	20%	10V
C317	1-104-665-11	ELECT	100uF	20%	10V
C320	1-162-290-31	CERAMIC	470PF	10%	50V
C331	1-164-159-21	CERAMIC	0.1uF		50V
C332	1-164-159-21	CERAMIC	0.1uF		50V
C351	1-126-960-11	ELECT	1uF	20%	50V
C352	1-130-479-00	MYLAR	0.0047uF	5%	50V
C353	1-136-165-00	FILM	0.1uF	5%	50V
C354	1-136-165-00	FILM	0.1uF	5%	50V
C355	1-126-964-11	ELECT	10uF	20%	50V
C356	1-126-960-11	ELECT	1uF	20%	50V
C357	1-126-959-11	ELECT	0.47uF	20%	50V
C358	1-126-964-11	ELECT	10uF	20%	50V
C359	1-136-173-00	FILM	0.47uF	5%	50V
C401	1-104-665-11	ELECT	100uF	20%	10V
C402	1-162-306-11	CERAMIC	0.01uF	20%	16V
C403	1-162-306-11	CERAMIC	0.01uF	20%	16V
C405	1-162-306-11	CERAMIC	0.01uF	20%	16V
C406	1-104-665-11	ELECT	100uF	20%	10V
C410	1-104-665-11	ELECT	100uF	20%	10V
C411	1-110-489-11	CAPACITOR	1F		5.5V
C412	1-164-159-21	CERAMIC	0.1uF		50V
C413	1-162-294-31	CERAMIC	0.001uF	10%	50V
C442	1-126-967-11	ELECT	47uF	20%	50V
					(F150/FR10:AEP,UK,G,SP,MY)
C442	1-124-252-00	ELECT	0.33uF	20%	50V
					(FR10:AUS)
C443	1-130-477-00	MYLAR	0.0033uF	5%	50V
C444	1-130-477-00	MYLAR	0.0033uF	5%	50V
C451	1-126-934-11	ELECT	220uF	20%	10V
C453	1-164-159-21	CERAMIC	0.1uF		50V
C456	1-164-159-21	CERAMIC	0.1uF		50V
C457	1-164-159-21	CERAMIC	0.1uF		50V
C458	1-164-159-21	CERAMIC	0.1uF		50V
C460	1-164-159-21	CERAMIC	0.1uF		50V
C461	1-126-964-11	ELECT	10uF	20%	50V
C462	1-162-294-31	CERAMIC	0.001uF	10%	50V
C463	1-162-294-31	CERAMIC	0.001uF	10%	50V
C492	1-126-967-11	ELECT	47uF	20%	50V
					(F150/FR10:AEP,UK,G,SP,MY)
C492	1-124-252-00	ELECT	0.33uF	20%	50V
					(FR10:AUS)

MAIN

Ref. No.	Part No.	Description			Remarks
C493	1-130-477-00	MYLAR	0.0033uF	5%	50V
C494	1-130-477-00	MYLAR	0.0033uF	5%	50V
C501	1-126-967-11	ELECT	47uF	20%	10V
C502	1-164-159-21	CERAMIC	0.1uF		50V
C503	1-136-173-00	FILM	0.47uF	5%	50V
C504	1-126-926-11	ELECT	1000uF	20%	10V
C505	1-162-306-11	CERAMIC	0.01uF	20%	16V
C506	1-136-165-00	FILM	0.1uF	5%	50V
C507	1-164-159-21	CERAMIC	0.1uF		50V
C508	1-104-665-11	ELECT	100uF	20%	10V
C509	1-164-027-11	CERAMIC	22PF	5%	50V
C510	1-164-027-11	CERAMIC	22PF	5%	50V
C511	1-126-934-11	ELECT	220uF	20%	10V
C512	1-164-159-21	CERAMIC	0.1uF		50V
C571	1-109-889-11	ELECT	1uF	20%	50V
C701	1-136-495-11	FILM	0.068uF	5%	50V
C702	1-136-495-11	FILM	0.068uF	5%	50V
C731	1-126-934-11	ELECT	220uF	20%	10V
C732	1-104-665-11	ELECT	100uF	20%	10V
C733	1-126-960-11	ELECT	1uF	20%	50V
C734	1-104-665-11	ELECT	100uF	20%	10V
C751	1-136-495-11	FILM	0.068uF	5%	50V
C752	1-136-495-11	FILM	0.068uF	5%	50V
C756	1-126-963-11	ELECT	4.7uF	20%	50V
C757	1-164-159-21	CERAMIC	0.1uF		50V
C901	1-136-165-00	FILM	0.1uF	5%	50V
C902	1-128-548-11	ELECT	4700uF	20%	25V
C903	1-104-666-11	ELECT	220uF	20%	25V
C904	1-126-967-11	ELECT	47uF	20%	16V
C905	1-126-940-11	ELECT	330uF	20%	16V
C908	1-162-301-11	CERAMIC	0.0015uF	30%	16V
C909	1-126-964-11	ELECT	10uF	20%	50V
C910	1-104-665-11	ELECT	100uF	20%	10V
C911	1-126-964-11	ELECT	10uF	20%	50V
C912	1-126-926-11	ELECT	1000uF	20%	10V
C913	1-126-943-11	ELECT	2200uF	20%	25V
C914	1-126-964-11	ELECT	10uF	20%	50V
C915	1-126-767-11	ELECT	1000uF	20%	16V
C916	1-126-964-11	ELECT	10uF	20%	50V
C917	1-126-767-11	ELECT	1000uF	20%	16V
C918	1-126-968-11	ELECT	100uF	20%	50V
C919	1-126-968-11	ELECT	100uF	20%	50V
C921	1-126-947-11	ELECT	47uF	20%	35V
C922	1-164-159-21	CERAMIC	0.1uF		50V
C923	1-164-159-21	CERAMIC	0.1uF		50V
C924	1-126-934-11	ELECT	220uF	20%	10V
C951	1-136-165-00	FILM	0.1uF	5%	50V
C952	1-126-943-11	ELECT	2200uF	20%	25V
C953	1-104-666-11	ELECT	220uF	20%	25V
C955	1-126-940-11	ELECT	330uF	20%	16V

< CONNECTOR >

Ref. No.	Part No.	Description
* CN101	1-564-506-11	PLUG, CONNECTOR 3P
CN102	1-784-774-41	CONNECTOR, FFC 13P (F150)
CN102	1-784-776-41	CONNECTOR, FFC 15P (FR10)
CN106	1-784-776-41	CONNECTOR, FFC 15P
CN107	1-784-778-41	CONNECTOR, FFC 17P
* CN108	1-568-954-11	PIN, CONNECTOR 5P (F150/FR10:AEP,UK,G)
* CN108	1-568-936-11	PIN, CONNECTOR 9P (FR10:AUS,SP,MY)
* CN110	1-564-506-11	PLUG, CONNECTOR 3P
* CN301	1-568-449-11	HOUSING, CONNECTOR(PC BOARD)3P
CN401	1-784-738-41	CONNECTOR, FFC 16P
CN402	1-784-731-41	CONNECTOR, FFC 9P
* CN403	1-568-951-11	PIN, CONNECTOR 2P
* CN451	1-568-955-11	PIN, CONNECTOR 6P
* CN453	1-568-951-11	PIN, CONNECTOR 2P
CN454	1-506-468-11	PIN, CONNECTOR 3P
CN461	1-506-469-11	PIN, CONNECTOR 4P
CN501	1-784-770-41	CONNECTOR, FFC 9P

< DIODE >

D141	8-719-991-33	DIODE 1SS133T-77
D333	8-719-991-33	DIODE 1SS133T-77
D401	8-719-200-82	DIODE 11ES2
D402	8-719-991-33	DIODE 1SS133T-77
D411	8-719-991-33	DIODE 1SS133T-77
D501	8-719-200-82	DIODE 11ES2
D502	8-719-200-82	DIODE 11ES2
D503	8-719-991-33	DIODE 1SS133T-77
D504	8-719-991-33	DIODE 1SS133T-77
D505	8-719-991-33	DIODE 1SS133T-77
D506	8-719-991-33	DIODE 1SS133T-77
D701	8-719-991-33	DIODE 1SS133T-77
D702	8-719-991-33	DIODE 1SS133T-77
D703	8-719-200-82	DIODE 11ES2
D704	8-719-200-82	DIODE 11ES2
D705	8-719-200-82	DIODE 11ES2
D731	8-719-991-33	DIODE 1SS133T-77
D732	8-719-991-33	DIODE 1SS133T-77
D733	8-719-991-33	DIODE 1SS133T-77
D751	8-719-991-33	DIODE 1SS133T-77
D901	8-719-200-82	DIODE 11ES2
D902	8-719-200-82	DIODE 11ES2
D903	8-719-200-82	DIODE 11ES2
D904	8-719-200-82	DIODE 11ES2
D905	8-719-935-39	DIODE HZS6B1LTD
D906	8-719-991-33	DIODE 1SS133T-77
D907	8-719-200-82	DIODE 11ES2
D908	8-719-200-82	DIODE 11ES2
D909	8-719-200-82	DIODE 11ES2
D910	8-719-200-82	DIODE 11ES2
D911	8-719-934-25	DIODE HZS33-1L
D912	8-719-921-44	DIODE MTZJ-5.1C
D913	8-719-991-33	DIODE 1SS133T-77
D914	8-719-200-82	DIODE 11ES2
D917	8-719-991-33	DIODE 1SS133T-77

< GROUND >

EP401	1-537-771-21	TERMINAL BOARD, GROUND
EP901	1-537-771-21	TERMINAL BOARD, GROUND

< FERRITE BEAD >

FB401	1-412-473-41	INDUCTOR 0UH
FB402	1-412-473-41	INDUCTOR 0UH
FB403	1-412-473-41	INDUCTOR 0UH
FB404	1-412-473-41	INDUCTOR 0UH
FB405	1-412-473-41	INDUCTOR 0UH

Ref. No.	Part No.	Description	Remarks
FB406	1-412-473-41	INDUCTOR 0UH	
FB407	1-412-473-41	INDUCTOR 0UH	
FB408	1-412-473-41	INDUCTOR 0UH	
FB409	1-412-473-41	INDUCTOR 0UH	
		< IC >	
IC101	8-759-495-24	IC M62442FP-TP	
IC191	8-759-634-51	IC M5218AP	
IC301	8-759-495-26	IC HA12215	
IC401	8-752-896-35	IC CXP84632-031Q	
IC402	8-749-923-04	IC TOTX178	
IC411	8-759-463-99	IC M5M5256DFP-70XL (CD DIGITAL)	
IC441	8-759-634-51	IC M5218AP	
IC461	8-759-356-03	IC BA6780	
IC501	8-759-534-06	IC uPD780016AYGF-011-3BA	
IC502	8-759-635-63	IC M51943BSL	
IC701	8-759-111-68	IC UPC1237HA	
IC901	8-759-604-86	IC M5F7807L	
IC902	8-759-231-53	IC TA7805S	
IC903	8-759-391-87	IC BA78M12P	
IC904	8-759-604-38	IC M5F78M10	
		< JACK >	
J101	1-573-028-31	JACK, PIN 4P (VIDEO/MD AUDIO)	
J191	1-770-377-31	JACK, PIN 1P (SUPER WOOFER)	
		< COIL >	
L101	1-408-575-31	INDUCTOR 100uH	
L401	1-410-509-11	INDUCTOR 10uH	
L402	1-410-509-11	INDUCTOR 10uH	
L457	1-410-509-11	INDUCTOR 10uH	
L501	1-410-509-11	INDUCTOR 10uH	
L701	1-420-872-00	COIL, AIR-CORE	
L751	1-420-872-00	COIL, AIR-CORE	
		< TRANSISTOR >	
Q111	8-729-661-90	TRANSISTOR 2SC2603	
Q112	8-729-661-90	TRANSISTOR 2SC2603	
Q113	8-729-141-31	TRANSISTOR 2SC3623ATP-LK	
Q161	8-729-661-90	TRANSISTOR 2SC2603	
Q162	8-729-661-90	TRANSISTOR 2SC2603	
Q163	8-729-141-31	TRANSISTOR 2SC3623ATP-LK	
Q191	8-729-141-31	TRANSISTOR 2SC3623ATP-LK	
Q331	8-729-116-57	TRANSISTOR 2SB1068-K	
Q332	8-729-900-80	TRANSISTOR DTC114ES	
Q333	8-729-116-57	TRANSISTOR 2SB1068-K	
Q334	8-729-900-80	TRANSISTOR DTC114ES	
Q335	8-729-900-80	TRANSISTOR DTC114ES	
Q336	8-729-116-57	TRANSISTOR 2SB1068-K	
Q337	8-729-144-44	TRANSISTOR 2SD1513-K	
Q338	8-729-900-63	TRANSISTOR DTA124ES	
Q339	8-729-900-80	TRANSISTOR DTC114ES	
Q340	8-729-116-57	TRANSISTOR 2SB1068-K	
Q341	8-729-144-44	TRANSISTOR 2SD1513-K	
Q342	8-729-900-63	TRANSISTOR DTA124ES	
Q343	8-729-900-80	TRANSISTOR DTC114ES	
Q411	8-729-900-36	TRANSISTOR DTC124ES	

Ref. No.	Part No.	Description	Remarks
Q501	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q505	8-729-900-63	TRANSISTOR DTA124ES	
Q571	8-729-900-63	TRANSISTOR DTA124ES	
Q572	8-729-900-63	TRANSISTOR DTA124ES	
Q575	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q701	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q702	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q703	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q704	8-729-111-29	TRANSISTOR 2SD1616A-K	
Q731	8-729-900-63	TRANSISTOR DTA124ES	
Q732	8-729-900-63	TRANSISTOR DTA124ES	
Q733	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q901	8-729-209-15	TRANSISTOR 2SD2012	
Q902	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q903	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q905	8-729-040-20	TRANSISTOR RT1P137L-TP	
Q906	8-729-422-57	TRANSISTOR UN4111	
Q907	8-729-040-20	TRANSISTOR RT1P137L-TP	
Q908	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q910	8-729-030-19	TRANSISTOR 2SB1640	
Q911	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q912	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q913	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q914	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q915	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q916	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q951	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q952	8-729-119-76	TRANSISTOR 2SA1175-HFE	
		< RESISTOR >	
R101	1-249-417-11	CARBON 1K 5% 1/4W	F
R102	1-249-417-11	CARBON 1K 5% 1/4W	F
R111	1-247-826-00	CARBON 620 5% 1/4W	
R112	1-247-903-00	CARBON 1M 5% 1/4W	
R113	1-247-903-00	CARBON 1M 5% 1/4W	
R114	1-249-419-11	CARBON 1.5K 5% 1/4W	F
R115	1-247-863-91	CARBON 22K 5% 1/4W	
R116	1-247-887-00	CARBON 220K 5% 1/4W	
R117	1-249-429-11	CARBON 10K 5% 1/4W	
R118	1-249-437-11	CARBON 47K 5% 1/4W	
R119	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R120	1-249-441-11	CARBON 100K 5% 1/4W	
R121	1-249-429-11	CARBON 10K 5% 1/4W	
R123	1-249-437-11	CARBON 47K 5% 1/4W	
R124	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R125	1-249-429-11	CARBON 10K 5% 1/4W	
R128	1-249-421-11	CARBON 2.2K 5% 1/4W	F
R131	1-247-807-31	CARBON 100 5% 1/4W	
R132	1-247-807-31	CARBON 100 5% 1/4W	
R133	1-247-807-31	CARBON 100 5% 1/4W	
R141	1-247-863-91	CARBON 22K 5% 1/4W	
R142	1-247-863-91	CARBON 22K 5% 1/4W	
R143	1-249-417-11	CARBON 1K 5% 1/4W	F (F150/FR10:AUS,SP,MY)
R143	1-249-418-11	CARBON 1.2K 5% 1/4W	F (FR10:AEP,UK,G)
R144	1-249-441-11	CARBON 100K 5% 1/4W	

MAIN

Ref. No.	Part No.	Description			Remarks
R145	1-247-903-00	CARBON	1M	5%	1/4W
R151	1-249-417-11	CARBON	1K	5%	1/4W F
R152	1-249-417-11	CARBON	1K	5%	1/4W F
R161	1-247-826-00	CARBON	620	5%	1/4W
R162	1-247-903-00	CARBON	1M	5%	1/4W
R163	1-247-903-00	CARBON	1M	5%	1/4W
R164	1-249-419-11	CARBON	1.5K	5%	1/4W F
R165	1-247-863-91	CARBON	22K	5%	1/4W
R166	1-247-887-00	CARBON	220K	5%	1/4W
R167	1-249-429-11	CARBON	10K	5%	1/4W
R168	1-249-437-11	CARBON	47K	5%	1/4W
R169	1-249-421-11	CARBON	2.2K	5%	1/4W F
R170	1-249-441-11	CARBON	100K	5%	1/4W
R171	1-249-429-11	CARBON	10K	5%	1/4W
R173	1-249-437-11	CARBON	47K	5%	1/4W
R178	1-249-421-11	CARBON	2.2K	5%	1/4W F
R191	1-249-437-11	CARBON	47K	5%	1/4W
R192	1-249-437-11	CARBON	47K	5%	1/4W
R193	1-249-437-11	CARBON	47K	5%	1/4W
R194	1-247-843-11	CARBON	3.3K	5%	1/4W
R195	1-249-429-11	CARBON	10K	5%	1/4W
R196	1-249-417-11	CARBON	1K	5%	1/4W F
R197	1-249-441-11	CARBON	100K	5%	1/4W
R198	1-249-417-11	CARBON	1K	5%	1/4W F
R199	1-249-429-11	CARBON	10K	5%	1/4W
R301	1-249-435-11	CARBON	33K	5%	1/4W
R302	1-249-421-11	CARBON	2.2K	5%	1/4W F
R303	1-247-807-31	CARBON	100	5%	1/4W
R304	1-247-807-31	CARBON	100	5%	1/4W
R305	1-249-421-11	CARBON	2.2K	5%	1/4W F
R306	1-249-428-11	CARBON	8.2K	5%	1/4W F
R307	1-249-428-11	CARBON	8.2K	5%	1/4W F
R308	1-249-425-11	CARBON	4.7K	5%	1/4W F
R309	1-247-863-91	CARBON	22K	5%	1/4W
R311	1-247-903-00	CARBON	1M	5%	1/4W
R312	1-247-883-00	CARBON	150K	5%	1/4W
R313	1-249-441-11	CARBON	100K	5%	1/4W
R315	1-249-429-11	CARBON	10K	5%	1/4W
R316	1-249-432-11	CARBON	18K	5%	1/4W
R317	1-249-429-11	CARBON	10K	5%	1/4W
R318	1-249-429-11	CARBON	10K	5%	1/4W
R319	1-247-893-11	CARBON	390K	5%	1/4W
R321	1-249-422-11	CARBON	2.7K	5%	1/4W F
R322	1-249-428-11	CARBON	8.2K	5%	1/4W F
R324	1-247-876-11	CARBON	75K	5%	1/4W
R325	1-249-437-11	CARBON	47K	5%	1/4W
R326	1-249-437-11	CARBON	47K	5%	1/4W
R327	1-249-437-11	CARBON	47K	5%	1/4W
R328	1-247-876-11	CARBON	75K	5%	1/4W
R329	1-249-417-11	CARBON	1K	5%	1/4W F
R330	1-249-425-11	CARBON	4.7K	5%	1/4W F
R331	1-249-425-11	CARBON	4.7K	5%	1/4W F
R332	1-249-415-11	CARBON	680	5%	1/4W F
R333	1-249-421-11	CARBON	2.2K	5%	1/4W F
R334	1-249-415-11	CARBON	680	5%	1/4W F
R335	1-249-421-11	CARBON	2.2K	5%	1/4W F
R336	1-249-437-11	CARBON	47K	5%	1/4W
R337	1-249-411-11	CARBON	330	5%	1/4W
R338	1-249-411-11	CARBON	330	5%	1/4W
R339	1-249-437-11	CARBON	47K	5%	1/4W

Ref. No.	Part No.	Description			Remarks
R340	1-249-437-11	CARBON	47K	5%	1/4W
R341	1-249-411-11	CARBON	330	5%	1/4W
R342	1-249-437-11	CARBON	47K	5%	1/4W
R343	1-249-417-11	CARBON	1K	5%	1/4W F
R351	1-249-435-11	CARBON	33K	5%	1/4W
R352	1-249-421-11	CARBON	2.2K	5%	1/4W F
R353	1-247-807-31	CARBON	100	5%	1/4W
R354	1-247-807-31	CARBON	100	5%	1/4W
R355	1-249-421-11	CARBON	2.2K	5%	1/4W F
R356	1-249-428-11	CARBON	8.2K	5%	1/4W F
R357	1-249-428-11	CARBON	8.2K	5%	1/4W F
R358	1-249-425-11	CARBON	4.7K	5%	1/4W F
R359	1-249-435-11	CARBON	33K	5%	1/4W
R401	1-249-437-11	CARBON	47K	5%	1/4W
R405	1-249-429-11	CARBON	10K	5%	1/4W
R411	1-249-437-11	CARBON	47K	5%	1/4W
R412	1-249-437-11	CARBON	47K	5%	1/4W
R414	1-249-429-11	CARBON	10K	5%	1/4W
R415	1-249-435-11	CARBON	33K	5%	1/4W
R416	1-249-437-11	CARBON	47K	5%	1/4W
R417	1-249-437-11	CARBON	47K	5%	1/4W
R418	1-249-437-11	CARBON	47K	5%	1/4W
R419	1-249-425-11	CARBON	4.7K	5%	1/4W F
R433	1-249-437-11	CARBON	47K	5%	1/4W
R434	1-249-437-11	CARBON	47K	5%	1/4W
R441	1-249-419-11	CARBON	1.5K	5%	1/4W F
R442	1-249-429-11	CARBON	10K	5%	1/4W
			(F150/FR10:AEP,UK,G,SP,MY)		
R442	1-249-435-11	CARBON	33K	5%	1/4W
					(FR10:AUS)
R443	1-249-429-11	CARBON	10K	5%	1/4W
R444	1-249-429-11	CARBON	10K	5%	1/4W
R446	1-249-420-11	CARBON	1.8K	5%	1/4W F
R451	1-247-807-31	CARBON	100	5%	1/4W
R461	1-249-382-11	CARBON	1.2	5%	1/6W F
R462	1-249-382-11	CARBON	1.2	5%	1/6W F
R463	1-249-429-11	CARBON	10K	5%	1/4W
R464	1-247-850-11	CARBON	6.2K	5%	1/4W
R465	1-249-429-11	CARBON	10K	5%	1/4W
R466	1-249-428-11	CARBON	8.2K	5%	1/4W F
R491	1-249-419-11	CARBON	1.5K	5%	1/4W F
R492	1-249-429-11	CARBON	10K	5%	1/4W
			(F150/FR10:AEP,UK,G,SP,MY)		
R492	1-249-435-11	CARBON	33K	5%	1/4W
					(FR10:AUS)
R493	1-249-429-11	CARBON	10K	5%	1/4W
R494	1-249-429-11	CARBON	10K	5%	1/4W
R496	1-249-420-11	CARBON	1.8K	5%	1/4W F
R501	1-249-413-11	CARBON	470	5%	1/4W F
R502	1-249-425-11	CARBON	4.7K	5%	1/4W F
R503	1-249-437-11	CARBON	47K	5%	1/4W
R504	1-249-437-11	CARBON	47K	5%	1/4W
R505	1-249-429-11	CARBON	10K	5%	1/4W
R507	1-247-897-11	CARBON	560K	5%	1/4W
R508	1-249-425-11	CARBON	4.7K	5%	1/4W F
R511	1-247-843-11	CARBON	3.3K	5%	1/4W
					(FR10:AEP,UK,G)
R511	1-249-425-11	CARBON	4.7K	5%	1/4W F
					(FR10:AUS)
R512	1-249-427-11	CARBON	6.8K	5%	1/4W F
					(FR10:AEP,UK,G,AUS)

Ref. No.	Part No.	Description			Remarks
R522	1-247-807-31	CARBON	100	5%	1/4W
					(FR10:AEP,UK,G)
R523	1-247-807-31	CARBON	100	5%	1/4W
					(FR10:AEP,UK,G)
R524	1-249-429-11	CARBON	10K	5%	1/4W
R526	1-249-429-11	CARBON	10K	5%	1/4W
R531	1-247-807-31	CARBON	100	5%	1/4W
R532	1-247-807-31	CARBON	100	5%	1/4W
R537	1-249-421-11	CARBON	2.2K	5%	1/4W
R538	1-249-441-11	CARBON	100K	5%	1/4W
R539	1-247-807-31	CARBON	100	5%	1/4W
R540	1-247-807-31	CARBON	100	5%	1/4W
R541	1-247-807-31	CARBON	100	5%	1/4W
R542	1-247-807-31	CARBON	100	5%	1/4W
R543	1-247-807-31	CARBON	100	5%	1/4W
R544	1-249-429-11	CARBON	10K	5%	1/4W
R545	1-247-807-31	CARBON	100	5%	1/4W
R546	1-247-843-11	CARBON	3.3K	5%	1/4W
R547	1-247-807-31	CARBON	100	5%	1/4W
R560	1-249-429-11	CARBON	10K	5%	1/4W
R561	1-247-807-31	CARBON	100	5%	1/4W
R562	1-247-807-31	CARBON	100	5%	1/4W
R563	1-247-807-31	CARBON	100	5%	1/4W
R564	1-247-807-31	CARBON	100	5%	1/4W
R565	1-247-807-31	CARBON	100	5%	1/4W
R566	1-247-807-31	CARBON	100	5%	1/4W
R567	1-247-807-31	CARBON	100	5%	1/4W
R571	1-249-421-11	CARBON	2.2K	5%	1/4W F
R572	1-249-441-11	CARBON	100K	5%	1/4W
R575	1-249-429-11	CARBON	10K	5%	1/4W
R576	1-249-429-11	CARBON	10K	5%	1/4W
R577	1-247-863-91	CARBON	22K	5%	1/4W
R580	1-249-437-11	CARBON	47K	5%	1/4W
R581	1-249-417-11	CARBON	1K	5%	1/4W
R700	1-247-863-91	CARBON	22K	5%	1/4W
R701	1-247-791-91	CARBON	22	5%	1/4W
R702	1-247-791-91	CARBON	22	5%	1/4W
R703	1-247-791-91	CARBON	22	5%	1/4W
R704	1-247-791-91	CARBON	22	5%	1/4W
R705	1-249-437-11	CARBON	47K	5%	1/4W
R706	1-249-437-11	CARBON	47K	5%	1/4W
R707	1-249-429-11	CARBON	10K	5%	1/4W
R708	1-249-429-11	CARBON	10K	5%	1/4W
⚠R709	1-215-893-11	METAL OXIDE	1.5K	5%	2W F
					(F150:US)
⚠R709	1-216-457-00	METAL OXIDE	1.2K	5%	2W F
					(F150:CND)
⚠R709	1-216-456-00	METAL OXIDE	820	5%	2W F
					(FR10:AEP,UK,G)
⚠R709	1-215-892-11	METAL OXIDE	1K	5%	2W F
					(FR10:AUS,SP,MY)
R716	1-249-437-11	CARBON	47K	5%	1/4W
R726	1-247-807-31	CARBON	100	5%	1/4W
R727	1-247-807-31	CARBON	100	5%	1/4W
R728	1-247-807-31	CARBON	100	5%	1/4W
R729	1-247-807-31	CARBON	100	5%	1/4W
R731	1-249-438-11	CARBON	56K	5%	1/4W
R732	1-249-437-11	CARBON	47K	5%	1/4W
R734	1-249-429-11	CARBON	10K	5%	1/4W
R735	1-249-425-11	CARBON	4.7K	5%	1/4W F

Ref. No.	Part No.	Description			Remarks
R736	1-249-425-11	CARBON	4.7K	5%	1/4W F
R737	1-247-791-91	CARBON	22	5%	1/4W
R738	1-249-435-11	CARBON	33K	5%	1/4W
R739	1-249-429-11	CARBON	10K	5%	1/4W
					(F150/FR10:AUS,SP,MY)
R739	1-249-427-11	CARBON	6.8K	5%	1/4W F
					(FR10:AEP,UK,G)
R740	1-249-429-11	CARBON	10K	5%	1/4W
R741	1-249-429-11	CARBON	10K	5%	1/4W
R742	1-249-429-11	CARBON	10K	5%	1/4W
					(F150/FR10:AUS,SP,MY)
R742	1-249-427-11	CARBON	6.8K	5%	1/4W F
					(FR10:AEP,UK,G)
R751	1-247-791-91	CARBON	22	5%	1/4W
R752	1-247-791-91	CARBON	22	5%	1/4W
R753	1-247-791-91	CARBON	22	5%	1/4W
R754	1-247-791-91	CARBON	22	5%	1/4W
R755	1-249-437-11	CARBON	47K	5%	1/4W
R756	1-249-425-11	CARBON	4.7K	5%	1/4W F
R757	1-249-441-11	CARBON	100K	5%	1/4W
R758	1-249-421-11	CARBON	2.2K	5%	1/4W F
R776	1-247-807-31	CARBON	100	5%	1/4W
R777	1-247-807-31	CARBON	100	5%	1/4W
R778	1-247-807-31	CARBON	100	5%	1/4W
R779	1-247-807-31	CARBON	100	5%	1/4W
R901	1-247-843-11	CARBON	3.3K	5%	1/4W
R902	1-249-415-11	CARBON	680	5%	1/4W F
R903	1-249-419-11	CARBON	1.5K	5%	1/4W F
R904	1-249-414-11	CARBON	560	5%	1/4W F
R905	1-249-425-11	CARBON	4.7K	5%	1/4W F
R906	1-247-843-11	CARBON	3.3K	5%	1/4W
R907	1-249-415-11	CARBON	680	5%	1/4W F
R908	1-249-429-11	CARBON	10K	5%	1/4W
R909	1-249-430-11	CARBON	12K	5%	1/4W
R910	1-249-429-11	CARBON	10K	5%	1/4W
R912	1-249-425-11	CARBON	4.7K	5%	1/4W F
R913	1-249-429-11	CARBON	10K	5%	1/4W
R914	1-247-815-91	CARBON	220	5%	1/4W
R915	1-247-815-91	CARBON	220	5%	1/4W
R917	1-249-437-11	CARBON	47K	5%	1/4W
R918	1-249-437-11	CARBON	47K	5%	1/4W
R919	1-249-425-11	CARBON	4.7K	5%	1/4W F
R920	1-247-863-91	CARBON	22K	5%	1/4W
R921	1-247-863-91	CARBON	22K	5%	1/4W
R923	1-249-383-11	CARBON	1.5	5%	1/6W F
R924	1-249-383-11	CARBON	1.5	5%	1/6W F
		< VARIABLE RESISTOR >			
RV301	1-238-600-11	RES, ADJ, CARBON 10K			
RV351	1-238-600-11	RES, ADJ, CARBON 10K			
		< RELAY >			
RY701	1-515-920-11	RELAY (24V)			

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MAIN PANEL

Ref. No.	Part No.	Description	Remarks
		< TERMINAL >	
TM701	1-694-055-31	TERMINAL BOARD (SP) (F150/FR10:AUS,SP,MY)	
TM701	1-694-055-41	TERMINAL BOARD (SP) (FR10:AEP,UK,G)	
		< VIBRATOR >	
X401	1-579-175-11	VIBRATOR, CERAMIC 10MHz	
X501	1-760-489-11	VIBRATOR, CERAMIC 5MHz	
X502	1-567-098-41	VIBRATOR, CRYSTAL 32.768KHz	
**********			
*	A-4407-778-A	PANEL BOARD, COMPLETE (F150) ******	
*	A-4407-791-A	PANEL BOARD, COMPLETE (FR10:AEP,UK,G) **********	
*	A-4407-832-A	PANEL BOARD, COMPLETE (FR10:AUS) ********	
*	A-4407-824-A	PANEL BOARD, COMPLETE (FR10:SP,MY) **********	
	1-517-773-11	INDICATOR TUBE, FLUORESCENT	
*	4-949-935-91	CUSHION (FL)	
*	4-990-380-11	HOLDER, FL TUBE	
		< CAPACITOR >	
C601	1-124-584-00	ELECT 100uF 20% 10V	
C602	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C603	1-126-157-11	ELECT 10uF 20% 16V	
C604	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C605	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C608	1-163-009-11	CERAMIC CHIP 0.001uF 10% 50V	
C609	1-124-584-00	ELECT 100uF 20% 10V	
C610	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C611	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C612	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C613	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C614	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C615	1-126-160-11	ELECT 1uF 20% 50V	
C617	1-126-160-11	ELECT 1uF 20% 50V	
C621	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C622	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C623	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C624	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C625	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C626	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C627	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C628	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C629	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C630	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C631	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C632	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C633	1-163-001-11	CERAMIC CHIP 220PF 10% 50V	
C641	1-164-182-11	CERAMIC CHIP 0.0033uF 10% 50V	
C642	1-126-157-11	ELECT 10uF 20% 16V	
C643	1-126-157-11	ELECT 10uF 20% 16V	
C644	1-124-584-00	ELECT 100uF 20% 10V	
C645	1-165-319-11	CERAMIC CHIP 0.1uF 50V	
C651	1-163-031-11	CERAMIC CHIP 0.01uF 50V	
C652	1-163-031-11	CERAMIC CHIP 0.01uF 50V	

Ref. No.	Part No.	Description	Remarks
		< DIODE >	
D601	8-719-210-33	DIODE EC10DS2	
D602	8-719-058-24	DIODE RB501V-40TE-17	
D611	8-719-058-64	DIODE SEL5823A (FWD)	
D612	8-719-058-64	DIODE SEL5823A (REW)	
D613	8-719-058-64	DIODE SEL5823A (GROOVE)	
D614	8-719-058-64	DIODE SEL5823A (DSP)	
D615	8-719-057-97	DIODE SEL5923A (CD)	
D616	8-719-058-04	DIODE SEL5223S (ENTER)	
D625	8-719-058-03	DIODE SEL5423E (TAPE A REW)	
D626	8-719-058-03	DIODE SEL5423E (TAPE A FWD)	
D628	8-719-058-64	DIODE SEL5823A (JOG)	
D630	8-719-058-03	DIODE SEL5423E (TAPE B REW)	
D631	8-719-058-03	DIODE SEL5423E (TAPE B FWD)	
D632	8-719-058-03	DIODE SEL5423E (CD)	
		< FERRITE BEAD >	
FB601	1-500-451-11	FERRITE 0UH	
FB602	1-500-451-11	FERRITE 0UH	
FB603	1-500-451-11	FERRITE 0UH	
		< IC >	
IC601	8-759-537-37	IC TMP87CM74AF-6660	
IC602	8-749-011-05	IC GP1U28X	
IC603	8-759-495-25	IC BA3833F-E2	
		< COIL >	
L601	1-408-777-00	INDUCTOR CHIP 10uH	
L602	1-408-777-00	INDUCTOR CHIP 10uH	
		< TRANSISTOR >	
Q601	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q602	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q603	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q604	8-729-900-36	TRANSISTOR DTC124ES	
Q605	8-729-900-36	TRANSISTOR DTC124ES	
Q608	8-729-900-36	TRANSISTOR DTC124ES	
Q609	8-729-900-36	TRANSISTOR DTC124ES	
Q611	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q612	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q621	8-729-620-05	TRANSISTOR 2SC2603-EF	
		< RESISTOR >	
R601	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R602	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R603	1-216-121-91	RES,CHIP 1M 5% 1/10W	
R604	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R605	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R606	1-216-085-00	METAL CHIP 33K 5% 1/10W	
R607	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R608	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R609	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R610	1-216-073-00	METAL CHIP 10K 5% 1/10W	
R611	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R612	1-216-061-00	METAL CHIP 3.3K 5% 1/10W	
R613	1-216-025-91	RES,CHIP 100 5% 1/10W	
R614	1-216-017-91	RES,CHIP 47 5% 1/10W	
R615	1-216-009-00	METAL CHIP 22 5% 1/10W	

Ref. No.	Part No.	Description			Remarks
R616	1-216-009-00	METAL CHIP	22	5%	1/10W
R617	1-216-081-00	METAL CHIP	22K	5%	1/10W
R618	1-216-107-00	METAL CHIP	270K	5%	1/10W
R619	1-216-097-91	RES,CHIP	100K	5%	1/10W
R620	1-216-089-91	RES,CHIP	47K	5%	1/10W
R621	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R622	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R623	1-216-073-00	METAL CHIP	10K	5%	1/10W
R624	1-216-097-91	RES,CHIP	100K	5%	1/10W
R625	1-216-089-91	RES,CHIP	47K	5%	1/10W
R626	1-216-033-00	METAL CHIP	220	5%	1/10W
R627	1-216-089-91	RES,CHIP	47K	5%	1/10W
R628	1-216-033-00	METAL CHIP	220	5%	1/10W
R629	1-216-099-00	METAL CHIP	120K	5%	1/10W
R633	1-216-027-00	METAL CHIP	120	5%	1/10W
R634	1-216-027-00	METAL CHIP	120	5%	1/10W
R635	1-216-027-00	METAL CHIP	120	5%	1/10W
R636	1-216-027-00	METAL CHIP	120	5%	1/10W
R637	1-216-025-91	RES,CHIP	100	5%	1/10W
R638	1-216-029-00	METAL CHIP	150	5%	1/10W
R645	1-216-033-00	METAL CHIP	220	5%	1/10W
R646	1-216-033-00	METAL CHIP	220	5%	1/10W
R648	1-216-033-00	METAL CHIP	220	5%	1/10W
R649	1-216-033-00	METAL CHIP	220	5%	1/10W
R650	1-216-033-00	METAL CHIP	220	5%	1/10W
R651	1-216-033-00	METAL CHIP	220	5%	1/10W
R655	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R661	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R662	1-216-033-00	METAL CHIP	220	5%	1/10W
R663	1-216-035-00	METAL CHIP	270	5%	1/10W
R664	1-216-039-00	METAL CHIP	390	5%	1/10W
R665	1-216-041-00	METAL CHIP	470	5%	1/10W
R666	1-216-045-00	METAL CHIP	680	5%	1/10W
R667	1-216-047-91	RES,CHIP	820	5%	1/10W
R668	1-216-051-00	METAL CHIP	1.2K	5%	1/10W
R669	1-216-053-00	METAL CHIP	1.5K	5%	1/10W
R670	1-216-057-00	METAL CHIP	2.2K	5%	1/10W
R671	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R672	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R673	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R674	1-216-073-00	METAL CHIP	10K	5%	1/10W
R675	1-216-079-00	METAL CHIP	18K	5%	1/10W
R676	1-216-689-11	METAL CHIP	39K	0.5%	1/10W
R677	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R678	1-216-033-00	METAL CHIP	220	5%	1/10W
R679	1-216-035-00	METAL CHIP	270	5%	1/10W
R680	1-216-039-00	METAL CHIP	390	5%	1/10W
R681	1-216-041-00	METAL CHIP	470	5%	1/10W
R682	1-216-045-00	METAL CHIP	680	5%	1/10W
R683	1-216-047-91	RES,CHIP	820	5%	1/10W
R685	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
		< SWITCH >			
S601	1-762-875-21	SWITCH, KEYBOARD (TAPE A FWD)			
S602	1-762-875-21	SWITCH, KEYBOARD (TAPE A REW)			
S603	1-762-875-21	SWITCH, KEYBOARD (TUNER/BAND)			
S604	1-762-875-21	SWITCH, KEYBOARD (DISPLAY/DEMO)			
S605	1-762-875-21	SWITCH, KEYBOARD (CLOCK TIMER)			

Ref. No.	Part No.	Description			Remarks
S606	1-762-875-21	SWITCH, KEYBOARD (TIMER SELECT)			
S607	1-762-875-21	SWITCH, KEYBOARD (MEMO SEARCH)			
S608	1-762-875-21	SWITCH, KEYBOARD (MEMO SCAN)			
S609	1-762-875-21	SWITCH, KEYBOARD (MEMO INPUT)			
S610	1-762-875-21	SWITCH, KEYBOARD (CHECK)			
S611	1-762-875-21	SWITCH, KEYBOARD (CLEAR)			
S612	1-762-875-21	SWITCH, KEYBOARD (DELETE)			
S613	1-762-875-21	SWITCH, KEYBOARD (REW)			
S614	1-762-875-21	SWITCH, KEYBOARD (FILE SELECT)			
S615	1-762-875-21	SWITCH, KEYBOARD (ENTER)			
S616	1-762-875-21	SWITCH, KEYBOARD (FWD)			
S617	1-762-875-21	SWITCH, KEYBOARD (TAPE B REW)			
S618	1-762-875-21	SWITCH, KEYBOARD (TAPE B FWD)			
S619	1-762-875-21	SWITCH, KEYBOARD (CD)			
S620	1-762-875-21	SWITCH, KEYBOARD (GROOVE)			
S621	1-762-875-21	SWITCH, KEYBOARD (DBFB)			
S622	1-762-875-21	SWITCH, KEYBOARD (DSP)			
S623	1-762-875-21	SWITCH, KEYBOARD (STOP)			
S651	1-473-392-31	ENCODER, ROTARY (VOLUME)			
S652	1-473-393-31	ENCODER, ROTARY (JOG)			
		< VIBRATOR >			
X601	1-579-952-21	VIBRATOR, CERAMIC 8MHz			
**********					
*	1-669-654-11	PON BOARD (FR10:SP,MY)			
		**********			
		< RESISTOR >			
R660	1-216-045-00	METAL CHIP	680	5%	1/10W
		< SWITCH >			
S630	1-762-875-21	SWITCH, KEYBOARD			
**********					
*	1-669-652-11	SW/POWER BOARD			
		**********			
		< DIODE >			
D617	8-719-058-04	DIODE SEL5223S (REC)			
D618	8-719-057-97	DIODE SEL5923A (PAUSE)			
		< RESISTOR >			
R631	1-216-029-00	METAL CHIP	150	5%	1/10W
R632	1-216-025-91	RES,CHIP	100	5%	1/10W
R656	1-216-033-00	METAL CHIP	220	5%	1/10W
R657	1-216-035-00	METAL CHIP	270	5%	1/10W
R658	1-216-039-00	METAL CHIP	390	5%	1/10W
R659	1-216-041-00	METAL CHIP	470	5%	1/10W
		< SWITCH >			
S625	1-762-875-21	SWITCH, KEYBOARD (POWER)			
S626	1-762-875-21	SWITCH, KEYBOARD (HI-SPEED DUBBING)			
S627	1-762-875-21	SWITCH, KEYBOARD (CD SYNCHRO)			
S628	1-762-875-21	SWITCH, KEYBOARD (REC)			
S629	1-762-875-21	SWITCH, KEYBOARD (PAUSE)			
**********					

TABLE SENSOR

TRANS

Ref. No.	Part No.	Description	Remarks
*	1-663-971-11	TABLE SENSOR BOARD	
		**********	
		< CONNECTOR >	
* CN51	1-568-944-11	PIN, CONNECTOR 6P	
CN52	1-506-481-11	PIN, CONNECTOR 2P	
		< IC >	
IC51	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391	
IC52	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391	
IC53	8-749-924-18	IC PHOTO INTERRUPTER RPI-1391	
		< RESISTOR >	
R51	1-249-416-11	CARBON 820 5% 1/4W F	
R52	1-249-416-11	CARBON 820 5% 1/4W F	
R53	1-249-416-11	CARBON 820 5% 1/4W F	
**********			
*	1-669-649-11	TRANS BOARD	
		**********	
	1-533-217-31	HOLDER, FUSE	
		< CONNECTOR >	
CN991	1-564-321-00	PIN, CONNECTOR 2P	
* CN992	1-564-518-11	PLUG, CONNECTOR 3P	
* CN993	1-564-522-11	PLUG, CONNECTOR 7P	
		< FUSE >	
⚠F992	1-532-504-51	FUSE TIME LAG 4A/250V(FR10:AUS,SP,MY)	
⚠F992	1-533-310-11	FUSE, GLASS TUBE6.3A 125V (F150)	
⚠F993	1-532-505-31	FUSE TIME LAG 5A/250V(FR10:AEP,UK,G)	
⚠F993	1-532-506-51	FUSE 6.3A/250V (FR10:SP,MY)	
⚠F994	1-532-505-51	FUSE TIME LAG 5A/250V(FR10:AEP,UK,G)	
⚠F994	1-532-506-51	FUSE 6.3A/250V (FR10:SP,MY)	
		< RESISTOR >	
⚠R991	1-219-119-81	FUSIBLE 0.1 5% 1/4W F	
⚠R992	1-219-119-81	FUSIBLE 0.1 5% 1/4W F	
⚠R993	1-219-119-81	FUSIBLE 0.1 5% 1/4W F	
⚠R994	1-219-119-81	FUSIBLE 0.1 5% 1/4W F	
⚠R995	1-202-725-00	SOLID 3.3M 10% 1/2W (F150)	
		< SWITCH >	
⚠S991	1-572-675-11	SWITCH,POWER VOLTAGE CHANGE	(FR10:SP,MY)
**********			
		**********	
		MISCELLANEOUS	
		**********	
5	1-233-544-11	ENCAPSULATED COMPONENT (F150)	
5	1-233-546-11	ENCAPSULATED COMPONENT (FR10)	
6	1-769-972-11	WIRE(FLAT TYPE)(13 CORE)(F150/FR10:AUS)	
6	1-773-004-11	WIRE(FLAT TYPE)(15 CORE)	
8	1-765-332-11	WIRE (FLAT TYPE) (15 CORE)	
9	1-773-055-11	WIRE (FLAT TYPE) (17 CORE)	
69	1-769-920-11	WIRE (FLAT TYPE) (9 CORE)	
⚠109	1-569-008-21	ADAPTOR, CONVERSION 2P (SP,MY)	
⚠109	1-770-019-11	ADAPTOR, CONVERSION PLUG 3P (UK)	
110	1-782-558-21	WIRE (FLAT TYPE) (16 CORE)	
111	1-782-559-21	WIRE (FLAT TYPE) (9 CORE)	
⚠114	1-690-609-21	CORD, POWER (US,CND)	
⚠114	1-696-847-11	CORD, POWER (AUS)	
⚠114	1-775-787-81	CORD, POWER (AEP,UK,G,SP,MY)	
322	1-777-874-11	WIRE (FLAT TYPE) (16 CORE)	
⚠401	8-848-379-31	OPTICAL PICK-UP KSS-213D/Q-NP	
FAN101	1-698-792-11	FAN, DC	
HP101	A-2056-681-A	DECK (A) ASSY, HEAD (230AWR1)	
HP101	A-2056-683-A	DECK (A) ASSY, HEAD (230PWR1)	
HRPE101	A-2056-682-A	DECK (B) ASSY, HEAD (230AWR1)	
HRPE101	A-2056-684-A	DECK (B) ASSY, HEAD (230PWR1)	
M1	A-2004-628-A	MOTOR ASSY, CAPSTAN	
M101	X-2646-110-1	T, T CHASSIS ASSY (MG) (F) (SPINDLE)	
M102	X-2625-769-1	MOTOR GEAR ASSY (MB) (RP) (SLED)	
⚠T991	1-431-844-11	TRANSFORMER, POWER (CND)	
⚠T991	1-431-842-11	TRANSFORMER, POWER (AUS,SP,MY)	
⚠T991	1-431-843-11	TRANSFORMER, POWER (US)	
⚠T991	1-431-845-11	TRANSFORMER, POWER (AEP,UK,G)	
**********			
		ACCESSORIES & PACKING MATERIALS	
		**********	
	3-862-493-11	MANUAL,INSTRUCTION (ENGLISH)	
	3-862-493-21	MANUAL,INSTRUCTION (FRENCH) (CND)	
	3-862-493-31	MANUAL,INSTRUCTION (FRENCH/SPANISH)	(AEP,SP,MY)
	3-862-493-41	MANUAL,INSTRUCTION (GERMAN) (AEP,UK)	
	3-862-493-51	MANUAL,INSTRUCTION	(ITALIAN/PORTUGUESE) (AEP)
	3-862-493-61	MANUAL,INSTRUCTION (DUTCH/SWEDISH)	(AEP)
	3-862-493-71	MANUAL,INSTRUCTION (CHINESE) (SP,MY)	
	8-917-636-90	REMOTE COMMANDER (RM-SF150)	
	4-991-151-21	BATTERY COVER (FOR RM-SF150)	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-872-09	SCREW +BVTT 3X8 (S)	
#3	7-685-871-01	SCREW +BVTT 3X6 (S)	
#4	7-685-650-79	SCREW +BVTP 3X16 TYPE2 IT-3	
#5	7-685-873-09	SCREW +BVTT 3X10 (S)	
#6	7-685-875-09	SCREW +BVTT 3X14 (S)	
#7	7-685-781-09	SCREW +PTT 2X4 (S)	
#8	7-685-783-09	SCREW +PTT 2X6 (S)	
#9	7-685-851-04	SCREW +BVTT 2X4 (S)	
#10	7-685-534-19	SCREW +BTP 2.6X8 TYPE2 N-S	
#11	7-628-254-15	SCREW +PS 2.6X6	
#12	7-628-254-50	SCREW +PS 2.6X16	
#13	7-685-850-04	SCREW +BVTT 2X3 (S)	
#14	7-685-132-19	SCREW +BTP 2.6X5 TYPE2 N-S	
#15	7-685-107-11	SCREW +P 2X12 TYPE2 NON-SLIT	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
#16	7-685-535-19	SCREW +BTP 2.6X10 TYPE2 N-S	
#17	7-685-134-19	SCREW (+ PTPWH) (2.6X8)	
#18	7-685-103-19	+ PTPWH (2X5)	
#19	7-627-553-17	SCREW,PRECISION +P 2X2	
#20	7-621-770-67	SCREW +PWH 2.6X6	
#21	7-685-852-04	SCREW +BVTT 2X5 (S)	

9-922-841-11

Sony Corporation
Home A&V Products Company

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(Shibaura)

SS-SRF1/SRF1A

SERVICE MANUAL

Ver 1.1 2001. 04

US Model
Canadian Model
AEP Model
UK Model
Australian Model
SS-SRF1
E Model
SS-SRF1/SRF1A

- SS-SRF1 is a speaker system in MHC-F150/FR10.
- SS-SRF1A is an option speaker system.

Photo : SS-SRF1A

SPECIFICATIONS

Speaker system
  Full range
Speaker units
  10 cm (4 inches) cone type
Enclosure type
  Bass reflex
Rated impedance
  16 ohms
Power handling capacity
  Maximum input power: 70 W
Sensitivity
  87 dB (1 W, 1 m)

Frequency range
  100 Hz to 20,000 Hz
Dimensions
  Approx. 117 x 170 x 150 mm (w/h/d) (4 5/8 x 6 3/4 x 6 inches) (w/h/d)
Mass
  Approx. 900 g/pc
Supplied accessory
  speaker cord 8 m (2)
  Adaptor (1)
Design and specifications are subject to change without notice.

SPEAKER SYSTEM

9-922-809-12
2001D1600-1
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Home Audio Company
Shinagawa Tec Service Manual Production Group

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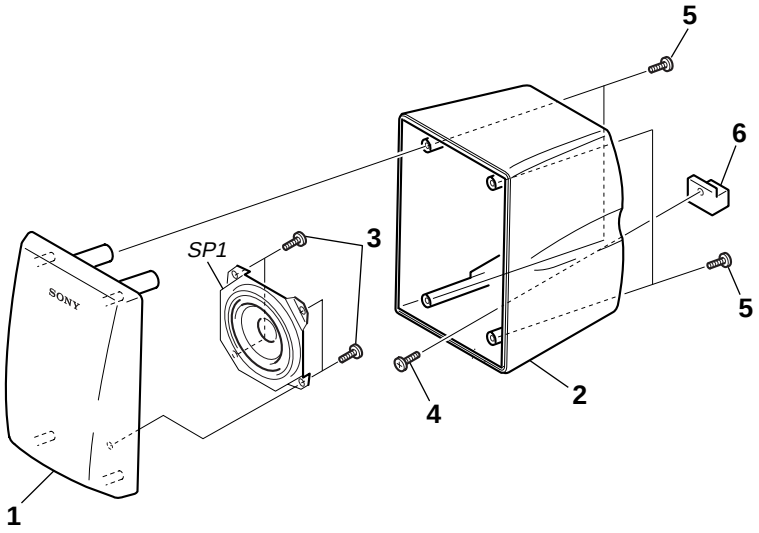
EXPLODED VIEW AND PARTS LIST

NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



Ref. No.	Part No.	Description	Remarks
1	X-4949-452-A	PANEL ASSY, FRONT	
* 2	X-4949-775-1	CABINET ASSY, SPEAKER	
3	7-685-659-79	SCREW +BVTP 4X8, TYPE2	
4	7-685-661-79	SCREW +BVTP 4X12, TYPE2	
5	4-929-125-01	SCREW (M4X6), TAPPING	
6	1-537-775-11	TERMINAL BOARD	
SP1	1-505-895-11	SPEAKER (10cm)	

Ref. No.	Part No.	Description	Remarks
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-769-433-11	CORD, SPEAKER	
	3-862-251-11	MANUAL INSTRUCTION (ENGLISH/FRENCH/SPANISH/GERMAN/DUTCH/SWEDISH/ITALIAN/PORTUGUESE/CHINESE) (SS-SRF1A)	

MEMO

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.1	2001.04	Correction of the information for the receiver. (SFD-01003)
1.0	1998.03	New

SS-F150/FR10

SERVICE MANUAL

US Model
Canadian Model
SS-F150
AEP Model
UK Model
E Model
Australian Model
SS-FR10

Photo : SS-F150

• SS-F150/FR10 is a front speaker system in MHC-F150/FR10.

SPECIFICATIONS

Speaker system	3 - way, bass-reflex type
Speaker units	
Woofer:	17 cm, cone type
Tweeter:	5 cm, cone type
Super Tweeter:	2 cm, dome type
Nominal impedance	8 ohms
Dimensions (w/h/d)	Approx. 215 × 375 × 290 mm
Mass	Approx. 4.5 kg net per speaker

Design and specifications are subject to change without notice.

FRONT SPEAKER SYSTEM

MICROFILM

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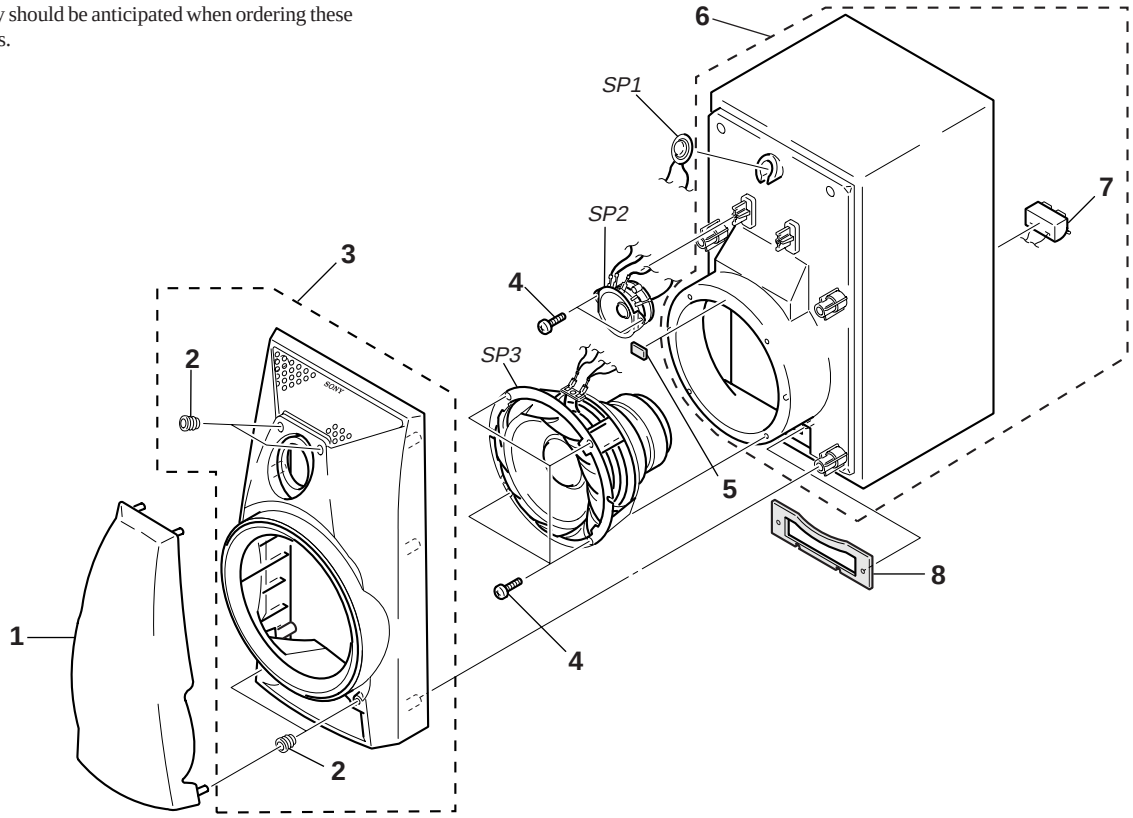
EXPLODED VIEW AND PARTS LIST

NOTE:
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



Ref. No.	Part No.	Description	Remarks
1	X-4949-939-1	FRAME ASSY, GRILLE	
* 2	4-963-075-01	CATCHER	
3	X-4949-940-1	PANEL ASSY, FRONT (F150)	
3	X-4950-128-1	PANEL ASSY, FRONT (FR10)	
4	4-874-614-61	SCREW (4) (3.5 × 16), TAPPING	
5	4-942-029-01	PACKING	
* 6	A-4411-060-A	CABINET ASSY, SPEAKER	
7	1-537-332-13	TARMINAL BOARD	
8	4-900-329-01	PACKING	

Ref. No.	Part No.	Description	Remarks
SP1	1-505-563-11	SPEAKER (2 cm)	
SP2	1-505-861-11	SPEAKER (5 cm)	
SP3	1-505-940-11	SPEAKER (16 cm)	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-769-306-11	CORD, SPEAKER	

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